



1978

1978

Environmental Impact Analysis Process

DEPARTMENT OF THE INTERIOR

FINAL

ENVIRONMENTAL STATEMENT

DTIC
ELECTE
AUG 12 1998
S
C
D

PROPOSED
PUBLIC LAND WITHDRAWAL
NELLIS AIR FORCE BOMBING RANGE
NYE, CLARK, AND LINCOLN COUNTIES,
NEVADA

DISTRIBUTION STATEMENT A
Approved for public release
Distribution Unlimited

PREPARED BY

BUREAU OF LAND MANAGEMENT
DEPARTMENT OF THE INTERIOR
AND
DEPARTMENT OF THE AIR FORCE



93-18544



277/95

93 8 10 117



**Air Force
Environmental Planning Division
(HQ USAF/CEVP)**

Room 5B269
1260 Air Force Pentagon
Washington, DC 20330-1260

16 JUL 93

MEMORANDUM FOR DTIC (Acquisition)

(ATTN: PAUL MAUBY)

SUBJ: Distribution of USAF Planning
Documents Forwarded on 1 JUL 93

ALL the documents forwarded to
your organization on the subject
date should be considered

Approved for Public Release, Distribution
is unlimited (Distribution Statement A).

Jack Bush, GMM-14
Mr. Jack Bush

Special Projects and Plans
703-697-2928
DSN 227-2928

DEPARTMENT OF THE INTERIOR

FINAL
ENVIRONMENTAL IMPACT STATEMENT

PROPOSED PUBLIC LAND WITHDRAWAL
NELLIS AIR FORCE BOMBING RANGE
NYE, CLARK, AND LINCOLN COUNTIES, NEVADA

Prepared by

BUREAU OF LAND MANAGEMENT
DEPARTMENT OF THE INTERIOR
AND
DEPARTMENT OF THE AIR FORCE

Accession For	
NTIS CRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By _____	
Distribution / _____	
Availability Codes	
Dist	Avail and/or Special
A-1	

DTIC QUALITY INSPECTED 8
DTIC QUALITY INSPECTED 3

UNANNOUNCE!

Ed Hunter

Acting Director, Bureau of Land Management

Department of the Interior
Disclaimer

The environmental statement on the withdrawal of public land for use by the Department of the Air Force, has been cooperatively prepared by the Department of the Air Force, the Fish and Wildlife Service, and the Bureau of Land Management. Chapter X, as well as data and information relating to Air Force mission objectives and continued need for the facility, are included to meet DOD and DOE requirements. The Bureau of Land Management, and the Fish and Wildlife Service, of the Department of the Interior take no position in regard to this material.

SUMMARY

Draft () Final (X) Environmental Statement
Department of the Interior, Bureau of Land Management

1. TYPE OF ACTION: Administrative () Legislative (X)

2. BRIEF DESCRIPTION OF ACTION: The United States Air Force has applied for renewal of the 2,945,726 acre Nellis Air Force Range withdrawal, in Nevada, for a period of 15 years with an option to renew for an additional 10 years. Nellis AFR consists of two units - the North Range (1,959,158 acres) and the South Range (986,568 acres). The South Range includes 826,000 acres of the Desert National Wildlife Range (DNWR), managed by U.S. Fish and Wildlife Service. Associated with the proposed withdrawal, the Air Force plans to increase the electronic warfare threat capability in order to meet the training requirements. Fifty-three additional electronic warfare sites would be added on the North Range.

A maintenance personnel complex would be built to provide for equipment repair, housing and administration requirements. About 315 miles of existing roads on both ranges would be repaired to provide access to the existing targets and approximately 60 miles of new roads would be built to the proposed electronic warfare sites. If the withdrawal is granted, the Air Force would continue Memorandums of Understanding (MOU) with the Department of Interior (DOI) and other Federal/State agencies for the management of natural resources. Future utilization of the Range by the Department of Energy (DOE), specifically Pahute Mesa, Tonopah Test Range (TTR), and possibly Yucca Mountain, must be authorized either by a withdrawal as specified in Section 204 of the Federal Land Policy Management Act of 1976 (Public Law 94-579) or MOU's.

3. SUMMARY OF ENVIRONMENTAL IMPACTS: Major impacts of the proposed action include:

Continued restrictions of public use and access to about 2,120,000 acres of public lands and 826,000 acres of wildlife refuge. Among the probable uses foregone are recreation, livestock grazing, mineral exploration and development and wildlife management on the public lands.

Low overflights and sonic booms detract from wilderness experience of a limited number of visitors at DNWR and create an annoyance to residents in the area.

Past activities have resulted in surface disturbance on over 12,000 acres; an additional 7,600 acres will be disturbed by construction and operational activities. This will include soil disturbance or loss, vegetation removal and wildlife habitat loss.

Local, limited levels of fugitive dust and gaseous emissions will occur throughout the range. These will be temporary, in the areas of operations and construction. There will be continued release of radioactive gases and limited resuspension of radioactive contaminated particulates.

Range activities will use 31,000 gallons of water daily. Underground nuclear testing may result in localized contamination of groundwater systems in the Pahute Mesa area.

Military and DOE nuclear test activities may result in more extensive contamination of the range.

An additional 550 military personnel and their dependents will be added to the area.

Destruction of 7,600 acres of habitat will result in some wildlife losses. Also, the ultimate effects of disturbance by low flying aircraft, sonic booms and electromagnetic radiation on wildlife and animals are unknown, however, limited data available does not indicate these impacts have been significant.

4. ALTERNATIVES CONSIDERED:

a. No Action: This alternative would require relocating the air-to-air, air-to-ground and DOE operations to other locations. The operational cost to the Air Force would be about \$390,000 per year for temporary duty assignments for the aircrews to train on other ranges, \$19.1 million per year for additional fuel requirements, and between one to two million dollars to relocate the target facilities and equipment. In addition, this alternative would not permit the return of the lands to public use due to existing contamination and difficulties with rehabilitation.

Fugitive dust and aircraft emissions would be reduced in the area. The potential impacts to the soil, watershed, vegetation, animals and wildlife habitat, and cultural resources would be avoided. If the Air Force also lost the overlying air space, then air-to-air activity would not be conducted, thus noise and sonic boom impacts over the DNWR would be eliminated. Socio-economic impacts would include population decreases of 217 at Beatty, 280 at Tonopah, and 3,920 at Las Vegas. Loss of income and expenditures would be about \$43.2 million collectively to Beatty, Tonopah and Las Vegas. Unemployment would increase by 112, 80, and 1,184 at Beatty, Tonopah, and Las Vegas, respectively.

b. Establish a New Range in Another Area: This alternative would require the Air Force to find land space comparable in size to the Nellis AF Range. The area would need to have a comparable number of visual flight rule days, be free of commercial traffic routes, and unpopulated. If the new area were not within commuting distance for the aircraft, or close to a military installation capable of handling the air traffic, then a new base would have to be built.

The environmental impact on the Nellis AF Range would be as described in the no action alternative, except noise and sonic boom impacts over the South Range and Desert National Wildlife Range would also be removed. Impacts of closing Nellis AFB would be a direct loss of 24,855 military and civilian personnel and their dependents. The direct and indirect population decrease would reduce Clark County's population by 13 percent. A dollar flow of 48.5 million would be lost to the Las Vegas economy per year.

c. "Reduction in Size" and "Joint Use", two other possible alternatives, were examined. A reduced withdrawal would not serve the mission needs of the Air Force. Joint use is not viewed as an alternative but any such proposals will be carefully considered by the Air Force and accommodated to the extent compatible with their mission.

5. COMMENTS HAVE BEEN REQUESTED FROM THE FOLLOWING:

a. Federal:

Department of the Interior

Fish and Wildlife Service
Geological Survey
Bureau of Mines
National Park Service
Water & Power Resource Service
Heritage Conservation and Recreation
Service
Bureau of Indian Affairs

Department of Agriculture

Forest Service
Soil Conservation Service

Department of Housing and Urban Development

Environmental Protection Agency

Department of Transportation

Federal Aviation Administration

Department of Health, Education, and Welfare

Department of Energy

Advisory Council on Historic Preservation

b. State of Nevada

Clearinghouse

Bureau of Mines

Historic Preservation Office

Fish and Game

c. Counties:

Clark

Nye

Lincoln

d. Municipal:

City of Las Vegas

City of North Las Vegas

Town of Tonopah

Town of Beatty

e. Private and Public Interest Groups - See Chapter IX for the complete list.

DATE DRAFT STATEMENT MADE AVAILABLE TO EPA AND THE PUBLIC:

27 July 1979

TABLE OF CONTENTS

<u>SUBJECT</u>	<u>PAGE</u>
Summary	ii-iv
Table of Contents	vi-ix
Figures	x
Tables	xi

CHAPTER 1

Description of the Proposed Action Continued Withdrawal of the Nellis AF Range

Proposed Action	1-1
History	1-3
Procedures for Withdrawal	1-6
Engle Act Considerations	1-6
Federal Land Policy and Management Act of 1976 (FLPMA) Considerations	1-6
National Environmental Policy Act Considerations	1-7
Existing Operations and Site Conditions	1-7
Air Force Utilization of the Nellis AF Range	
Indian Springs AAF Operations	1-19
Other Federal Operations and Site Conditions on the Nellis AF Range	1-19
Future Developments and Operations	1-27
U.S. Air Force	1-27
Department of Energy	1-31
Interrelationships	1-32
Fish and Wildlife Service - Desert National Wildlife Range	1-32
Bureau of Land Management Wild Horse Range	
Five Party Cooperative Agreement	1-32
Relationship of the Action to Land Use Plans, Policies, and Controls for the Affected Area	1-34 1-35

CHAPTER II

Description of the Environment	2-1
Climate	2-1
Air Quality	2-3
Topography and Geologic Setting	2-7
Soil and Watershed	2-9
Water Resources	2-13

<u>SUBJECT</u>	<u>PAGE</u>
Vegetation	2-18
Animals	2-22
Antiquities	2-27
Paleontological Resources	2-27
Cultural Resources	2-28
Visual Resources	2-29
Land Use	2-29
Recreation	2-29
Livestock Grazing	2-30
Agriculture	2-31
Mineral Resources	2-31
Wilderness	2-34
Land Use Plans, Controls and Constraints	2-36
Socio-Economic Conditions	2-38
Population	2-38
Employment	2-38
Income and Expenditures	2-44
Government Finance and Taxation	2-44
Housing	2-45
Health Facilities	2-46
Social Attitudes, Expectations, and Life Style	2-46
Infrastructures	2-46
Hazards and Safety	2-47

CHAPTER III

Environmental Impacts on the Proposed Action	3-1
Climate	3-1
Air Quality	3-1
Topography and Geological Setting	3-1
Soils and Watershed	3-5
Water Resources	3-6
Vegetation	3-8
Animals	3-9
Antiquities	3-11
Visual Impacts	3-11
Land Use	3-11
Recreation	3-11
Livestock Grazing	3-12
Agriculture	3-12
Mineral Resources	3-11
Wilderness	3-13
Land Use Plans, Controls, and Constraints	3-14
Socio-Economic Conditions	3-14
Population	3-14
Employment	3-15
Income and Expenditures	3-17
Government Finance and Taxation	3-17
Housing	3-17
Health Facilities	3-18

<u>SUBJECT</u>	<u>PAGE</u>
Social Attitudes, Expectations, and Life Style	3-18
Infrastructures	3-19
Hazards and Safety	3-19

CHAPTER IV

Mitigation Measures	4-1
Air Force Committed Measures	4-1
Department of Energy	4-2
Department of Defense Committed Measures	4-3

CHAPTER V

Adverse Impacts That Cannot Be Avoided Should The Proposal Be Implemented	5-1
Introduction	5-1
Air Quality	5-1
Topography	5-1
Soils and Watershed	5-1
Water Resources	5-2
Vegetation	5-2
Animals	5-3
Cultural Values	5-3
Visual	5-3
Land Use	5-3
Recreation	5-3
Agriculture	5-3
Mineral Resources	5-4
Wilderness	5-4
Socio-economic Conditions	5-4
Hazards and Safety	5-4

CHAPTER VI

Relationship Between Local Short-Term Uses of Man's Environment and Maintenance and Enhancement of Long-Term Productivity	6-1
---	-----

CHAPTER VII

Irreversible and Irretrievable Commitments of Resources	7-1
---	-----

SUBJECT

PAGE

CHAPTER VIII

Alternatives to the Proposed Action	8-1
No Action	8-1
Reduce the Size of Withdrawal	8-4
Establish a New Range in Another Area	8-6
Joint Use	8-7

CHAPTER IX

Consultation and Coordination	9-1
Agencies and Interested Groups Contacted	9-3
Correspondence Received Prior to Publishing Draft EIS	9-7
Correspondence Received During Public Comment Period	9-25
Individual Comments Presented at Public Hearing	9-106

CHAPTER X

Considerations That Must Be Balanced Against Adverse Environmental Effects Of The Proposed Action	10-1
---	------

APPENDIX

NUMBER

PAGE

A	Description of Proposed Withdrawal	A-1
B	Glossary	B-1
C	References	C-1
D	Excerpts from FLPMA and the Engle Act	D-1

FIGURES

<u>NUMBER</u>	<u>SUBJECT</u>	<u>PAGE</u>
1-1	Vicinity Map	1-2
1-2	Subrange/Target Areas	1-2
1-3	A Typical Red Flag Training Exercise	1-15
1-4	Ordnance Burial and Contaminated Sites	1-18
1-5	DOE Land Use Areas	1-20
1-6	Plan View of the Tonopah Test Range	1-24
1-7	Nuclear Testing Area of Pahute Mesa	1-26
1-8	Proposed Road Projects	1-30
1-9	Department of Interior Land Management Areas	1-33
2-1	Average Annual Precipitation	2-2
2-2	Characteristics Surficial Features of Southern Nevada	2-8
2-3	General Soils - Geology Map	2-10
2-4	Average Annual Evaporation	2-14
2-5	Water Resources and inter Basin Flows	2-15
2-6	Vegetal Cover Map	2-19
2-7	Threatened and Endangered Flora	2-21
2-8	Distribution of Large Mammals	2-26
2-9	Mining Districts	2-33
2-10	Seismic Activity	2-49

TABLES

<u>NUMBER</u>	<u>SUBJECT</u>	<u>PAGE</u>
1-1	Nellis AF Range Complex (History)	1-4
1-2A	South Range	1-8
1-2B	North Range	1-10
1-3	Nellis AF Range Utilization by Sorties	1-14
1-4	Tonopah Test Range Activities	1-22
1-5	Tonopah Test Range Facilities	1-23
1-6	Future Projects for the Nellis AF Range	1-28
2-1	Number of Stations at which Air Quality Standards were Exceeded - 1974 & 1978	2-4
2-2	Ambient Air Quality at Clark and Nye County Monitoring Stations - 1974 & 1978	2-5
2-3	Air Quality Standards	2-6
2-4	Water Quality	2-17
2-5	Proposed Endangered or Threatened Flora on and Adjacent to the Nellis AF Range	2-20
2-6	Wildlife on the Nellis AF Range	2-23
2-7	Mines on and Adjacent to Nellis AF Range	2-32
2-8	Land-Use Controls	2-37
2-9	Population for Selected Counties and State of Nevada, 1960, 1970, and 1975	2-39
2-10A	Clark County Establishment - Base Industrial Employment, 1970 - 1974	2-40
2-10B	Esmeralda County Established - Base Industrial Employment, 1970 - 1974	2-41
2-10C	Lincoln County Established - Base Industrial Employment, 1970 - 1974	2-42
2-10D	Nye County Established - Base Industrial Employment, 1970 - 1974	2-43
3-1	Projected Assessment of Fugitive Dust Generation	3-3
3-2	Projected Aircraft Emissions	3-3
3-3	Dispersion Estimate of Aircraft Emissions at Nellis AFB	3-3
3-4	Estimated Population by County Plus Growth from Nellis AF Range Personnel	3-16

CHAPTER I

DESCRIPTION OF THE PROPOSED ACTION CONTINUED WITHDRAWAL OF THE NELLIS AIR FORCE RANGE

PROPOSED ACTION

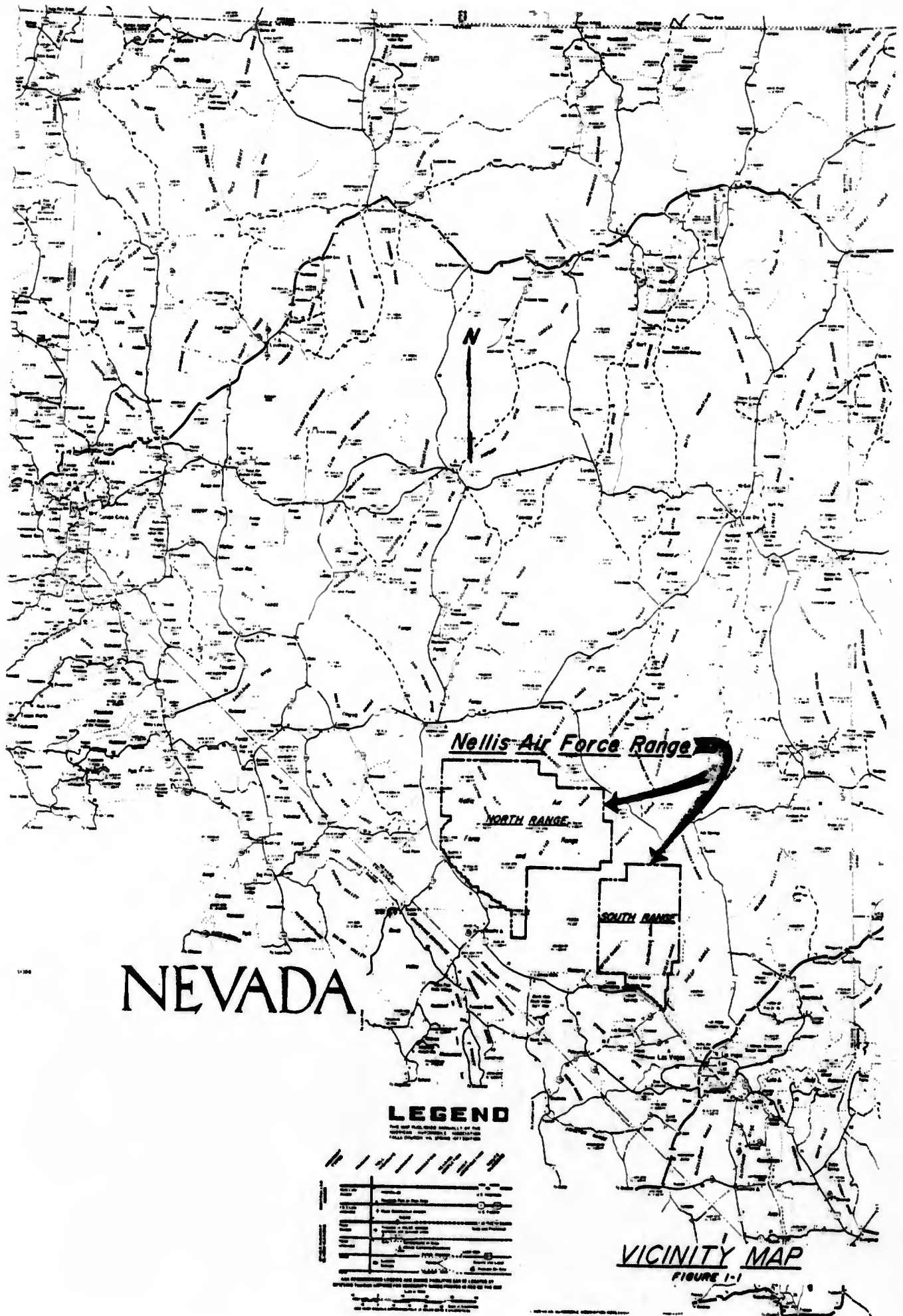
The United States Air Force proposes to withdraw 2,945,726 acres, more or less, of public land in the State of Nevada from settlement, sale, location, or entry under the public land laws of the United States, including the mining and mineral leasing laws and disposal of materials under the Act of July 31, 1947 (30 USC 6701, et. Seq.) for continued use as the Nellis Air Force Range. This withdrawal is proposed pursuant to the Act of 1958, Public Law 85-337, known as The Engle Act and Public Law 94-579, The Federal Land Policy and Management Act of 1976 (FLPMA).

Appendix A provides the legal description of the land proposed for withdrawal. Included in the proposal are some minor adjustments to the presently established boundaries around the southern extension of the Desert National Wildlife Range (DNWR) to facilitate Fish and Wildlife Service (FWS) management objectives for the DNWR. The boundary adjustments would reduce the current withdrawals under Executive Order (E.O.) 9019 and Public Law (P.L.) 87-310 by approximately 5,600 acres. The proposed renewal of withdrawal will be for a period of 15 years with an option to renew for ten additional years. The proposal does not include public land which has been withdrawn on Nellis AFB, Lake Mead Base, or the Nellis Air Force Gunnery Range, because these areas are not part of the Range.

The Nellis AF Range is geographically located northwest of Las Vegas, NV, in Clark, Lincoln, and Nye Counties. It is bordered by U.S. highways 95 on the south and west, 6 on the north side, 25, 91, and 93 on the east side. (See figure 1-1.)

The Nellis AF Range is the most sophisticated range in the Air Force inventory. Although some of the capability or training is duplicated at other Air Force ranges, these ranges do not have the land space that is required for changing training scenarios. Nellis AF Range has the land necessary to prevent stereotype training. The climate of southern Nevada is most conducive to year-round range operations.

Purpose of the proposed withdrawal is to continue providing a suitable range complex to conduct training, testing and weapons evaluation operations for the Air Force, Army, Marine Corps, National Guard, Navy, Reserve Forces, DOE, and other Federal agencies with defense related programs that require uninhabited land to prevent compromising safety and national security.



HISTORY

President F.D. Roosevelt established the Desert Game Range in 1936 by Executive Order No. 7373 for the protection and preservation of the resident populations desert bighorn sheep. On October 29, 1940, President Roosevelt by E.O. 8578 established the Las Vegas Bombing and Gunnery Range (now called Nellis AF Range). Since this date, the range has been the subject of two additional E.O.'s, nine Public Land Orders, two Memorandums of Understanding (MOU's) and one Public Law. Withdrawn land of Indian Springs Auxiliary Airfield (AAF) dates back to November 12, 1942 when PLO-58 designated 25,294 acres of public land for military use. (Subsequently, more definitive surveys show the actual acreage to be 26,622. Only 1,974 acres of PLO-58 was designated as Indian Springs AAF land. The balance was included in the Nellis AF Range Complex.) Since that time three other PLOs were enacted to provide a total of 2,082 acres of public land for Indian Springs AAF.

Table 1-1 provides a brief chronological history of the various actions involving the real estate of the Nellis AF Range and Indian Springs AAF.

From the initial date of the Nellis AF Range until 1959, co-use was granted to cattlemen and miners. Between 1959 and 1965, under the authority of the Air Force Real Estate Directive 592.2, dated September 21, 1954, a total of \$708,000 was expended in the extinguishment of all grazing and mineral rights within the Range except for three patented mining claims that are still under lease [1]. The Air Force is currently negotiating the purchase of these three mining claims.

In order to provide for the protection of bighorn sheep and wild horses, the Air Force, FWS, and BLM entered into MOUs on June 1951 and June 1962. Those MOUs have been updated and amended as necessary to assure proper management by the respective agencies. More detailed discussion on these MOUs will be provided in the Interrelationship section (page 1-32) of this chapter.

Public Land Orders 805, 1382, and 2568 transferred portions of the Nellis AF Range to the Atomic Energy Commission (now DOE) for the development of the Nevada Test Site (NTS) located between the north and south portion of the Nellis AF Range. The Air Force, through an MOU, permitted 369,280 acres in November, 1956 to DOE for utilization as a fully instrumented ballistic test range. This area is referred to as the Tonopah Test Range (TTR).

TABLE 1-1

NELLIS AIR FORCE RANGE COMPLEX

<u>TYPE OF DOCUMENT</u>	<u>DATE</u>	<u>ACTION</u>	<u>ACREAGE AS SHOWN ON DOCUMENT</u>	<u>ACREAGE COMPILED FROM LAND PLAT MAPS*</u>
Executive Order 7373	May 20, 1936	Established DNWR	2,200,000.00	3,560,000.00
Executive Order 8578	Oct 29, 1940	Reserved	3,560,000.00	937,730.12
Executive Order 9019	Jan 12, 1942	Deleted (E.O. 8578)	942,700.00	470,836.00
Executive Order 9086	Mar 4, 1942	Added	483,840.00	184,371.28
Public Land Order 58	Nov 12, 1942	Added	184,371.28	26,621.79
Public Land Order 89	Feb 10, 1943	Added	27,006.09	30.60
Public Land Order 168	Sep 17, 1943	Added	66.60	37.40
Public Land Order 712	Apr 16, 1951	Added	37.40	94,266.93
Public Land Order 762	Nov 9, 1951	Added	394,799.37	
Public Land Order 805	Feb 12, 1952	Corrected Description Only (PLO-712)		
Public Land Order 1382	Jan 16, 1957	Deleted for DOE (E.O. 8578)	435,000.00	415,418.44
Public Land Order 1920	Jul 22, 1959	Deleted (E.O. 8578)	155,645.00	155,645.00
Public Land Order 2568	Dec 19, 1961	Deleted (E.O. 8578)	38,400.00	38,400.00
Memorandum of understanding	Jan 20, 1961	Deleted (PLO-712)	5,120.00	4,749.00
Public Law 87-310	26, 1961	Deleted for DOE (E.O. 8578)	318,000.00	318,000.00
Public Land Order 2613	Feb 16, 1962	Added	54,680.66	
Public Land Order 4079	Aug 26, 1966***	Added	81,480.00	81,480.00
Public Land Order 4986	Dec 24, 1970	Extended PLOs 8578, 9019, 9086, 58, 89, and 168	-	-
Public Land Order 5300	Nov 20, 1972	Reserved	1,588,460.00	
Memorandum of Understanding	Mar 11, 1976	Added	3,631.19	3,631.19
Proposed Withdrawal Renewal	-	Deleted	40.00	40.00
		Delete (P.L. 87-310 and E.O. 9019)	-	-
		TOTAL**	2,940,406.60	2,945,725.57

*Acreages shown are as compiled from the latest master title plats on file in the Nevada State Office, Reno, NV.

**Total does not include E.O. 7373 or PLO 4079 which are related to NWR.

***Changed name of Desert Game Range to Desert National Wildlife Range and reduced the size to 1,500,000 acres.

"A training camp was erected in 1942 at Indian Springs, Nevada, to facilitate air-to-air firing training for aircrews. Later in 1942, the camp was designated as Indian Springs Army Air Field. The airfield has been transferred to many different Air Force Commands, but has now been a part of the Tactical Air Command since April 1, 1961 and was redesignated as Indian Springs Auxiliary Air Field (AAF) on April 1, 1964[7]." Indian Springs AAF provides support and maintenance for the Nellis AF Range and thus, is considered part of the total range complex.

"In the past, the capability of the United States Air Force to accomplish its wartime mission has often been dependent on weapon systems that have never been tested and evaluated in an operational environment of the type expected when required to engage the enemy. Similarly, the aircrews that utilize these weapon systems have not, in many cases, received adequate training for their employment. This condition has historically caused a high loss rate of manpower and equipment during the early days of a war. A study made of World War II and the Korean War revealed that the first ten combat missions flown by our aircrews were the most hazardous. Results of this study were substantiated by our experiences in the Vietnam War"[1]. To alleviate this condition, a capability must be provided to operationally test and evaluate new weapons systems, and permit aircrew combat training, under conditions that simulate, as nearly as possible, an actual enemy scenario. This mission has been assigned to the Air Force's Tactical Fighter Weapons Center (TFWC) located at Nellis Air Force Base in Nevada. The TFWC is the command organization for Nellis AFB and functions directly under the Commander, Tactical Air Command. Subordinate units of the TFWC which are responsible for conducting TFWC range operations are the 57th Tactical Training Wing (TTW), the 440th Tactical Fighter Training Group (TFTG), and the TFWC Range Group.

Range maintenance and support for the Department of Energy (DOE), formerly Energy Research and Development Administration (ERDA), is provided by Indian Springs Auxiliary Air Field (AAF). The 57th Combat Support Squadron (CSS) is under the command of the 57th TTW at Nellis AFB.

In order to provide a superior defense in both conventional and nuclear capability, the Air Force, as the action agency for DOD is seeking continued use of these public lands for use as the Nellis AF Range.

PROCEDURES FOR WITHDRAWAL

Public Land Order 2613, dated February 16, 1962 extended PLOs 8578, 9019, 9086, 58, 89, and 168 for a 15 year period and thus expired on February 15, 1977. Withdrawal under P.L. 87-310 was also a 15 year withdrawal which expired on September 25, 1976. remainder of the PLOs (712, 4968, and 5300) have no termination dates but are subject to review by the Bureau of Land Management within 15 years to determine if the Air Force still has a valid requirement for the land. Therefore, environmental documentation is being provided on the entire range complex for consideration under the Act of 1958 (PL 85-337), the Federal Land Policy and Management Act (FLPMA) of 1976 (PL 94-579), and the National Environmental Policy Act of 1969 as amended (PL 91-190). (See Appendix D).

ENGLE ACT CONSIDERATIONS

Passage of the Act of 1958 (PL 85-337) shifted the responsibility for defense-related withdrawals from the Executive Branch of Government back to Congress.

The Engle Act requires congressional legislation for withdrawals in excess of 5,000 acres. Withdrawals of less than 5,000 acres will continue to be made by the Executive Branch by enacting PLOs.

FEDERAL LAND POLICY AND MANAGEMENT ACT OF 1976 (FLPMA) CONSIDERATIONS

Passage of FLPMA provided procedures for withdrawal of public land by the Secretary of the Interior. The Act established new procedures for executing land withdrawals for public lands not under the DOD jurisdiction and established a segregative period of two years, allowing the Secretary of the Interior adequate time to evaluate and process the application for withdrawal. Since the lands proposed for withdrawal for the Nellis AF Range are under the administrative jurisdiction of BLM and FWS, FLPMA procedures are being followed to process the land withdrawal. The major legislative difference between application of the FLPMA and the Engle Act is that under FLPMA, Congress must act to disapprove the proposed withdrawal. In the absence of disapproval, the withdrawal takes effect. Under the Engle Act, Congress must approve the withdrawal giving use of the land to the DOD. Because the DOD is using BLM and FWS lands, both Acts must be considered by the Secretary of the Interior and Defense before submittal to Congress.

NATIONAL ENVIRONMENTAL POLICY ACT CONSIDERATIONS

The National Environmental Policy Act (NEPA) of 1969 (PL 91-190) insures that the environmental impacts of continued withdrawal of land for Nellis AF Range will be addressed. Additionally, NEPA requirements support FLPMA requirements in that Congress must be provided documentation of the environmental and economic impacts; a clear explanation of the proposed use of the land; evaluation of the natural resources; possible alternatives; and consultation with other Federal, State, and public interest groups concerning the withdrawal.

As discussed previously, several Executive and Public Land Orders were granted to the Air Force in establishing the present range acreage. This current withdrawal action would consolidate the land under one withdrawal legislative action.

The Air Force will comply with all requirements contained in such legislation as Clean Air, Clean Water, Wilderness, Endangered Species, Historic Preservation Acts, and so forth, as they apply to continued use of the land.

EXISTING OPERATIONS AND SITE CONDITIONS AIR FORCE UTILIZATION OF THE NELLIS AF RANGE

In order to assure proper training of aircrews and operational evaluation of weapons system capability, the TFWC has established an array of subranges with target complexes which encompass simple air-to-ground supervised (manned) ranges to the more complicated tactical air-to-ground and air-to-air ranges. Tables 1-2A and 1-2B list the subranges by South Range and North Range respectively, their major use, types of target array, ordnance types authorized, total acreage, and amount of acreage disturbed from bombing and construction activities.

Figure 1-2 shows the subrange locations within the Range. Bombing circles, triangles, simulated runways, and airfields are constructed by blading with a bulldozer to scribe the target on the land. Convoys, industrial complexes, and aircraft targets are constructed with old vehicles, 55 gallon drums, and wood constructed aircraft, respectively. Occasionally, Intercontinental Ballistic Missile (ICBM) targets are constructed by stacking 55 gallon drums and painting them silver to simulate an ICBM site. Anti-aircraft artillery (AAA) and Surface to Air Missile (SAM) targets are simulated by using old armament vehicles equipped with gun barrels and wood constructed missiles, respectively.

TABLE 1-2A

SOUTH RANGE

<u>SUB RANGE</u>	<u>MAJOR USE</u>	<u>FACILITIES</u>	<u>ORDNANCE</u>	<u>TOTAL ACREAGE</u>	<u>IMPACTED* ACREAGE</u>
61	Tactical Firepower Demonstration Range	Assault type runway with parallel taxiways. Targets are built as required for particular demonstrations. Spectator area	Live ordnance	4,882	15
62	Unmanned Tactical Range	Bladed circle targets, simu- lated supply area, anti-air- craft artillery site, simu- lated missile site, vehicle convoy, SAM site, and ICBM site	Live ordnance allowed on specified targets	342,080	968
63	Instrumented Manned Range, used for testing and evaluating new weapons systems	Bladed circle, triangle, and rectangle targets range equipped with radar, cameras, and TV systems to score bomb and rocket deliveries	Live ordnance allowed on specified targets	87,458	69
64	Unmanned Tactical Range	Convoy, tanks, simulated artillery, simulated supply depot and railroad, special force camp, and an airfield with simulated aircraft	Live ordnance allowed	498,767	215

TABLE 1-2A (CONT'D)

<u>SUB RANGE</u>	<u>MAJOR USE</u>	<u>FACILITIES</u>	<u>ORDNANCE</u>	<u>TOTAL ACREAGE</u>	<u>IMPACTED* ACREAGE</u>
65	Instrumented Manned Range	Bladed bomb circles, strafe targets, skip bomb target, scorable tactical targets, and radar bombing target. Scoring systems include visual, acoustiscore, and theodolite	Inert ordnance	53,381	65
Air-to- Air	Aircraft gunnery firing at towed targets (darts)	Conducted above subranges 62 and 64	Live ordnance		
ACMI	Air-to-Air Combat Training	Conducted above subranges 62, 63, 64 and 65	None		
Roads		190 Miles			323
			TOTAL SOUTH RANGE ACREAGE	986,568	1655

*DATA COMPILED FROM AERIAL PHOTOGRAPHS

TABLE 1-2B

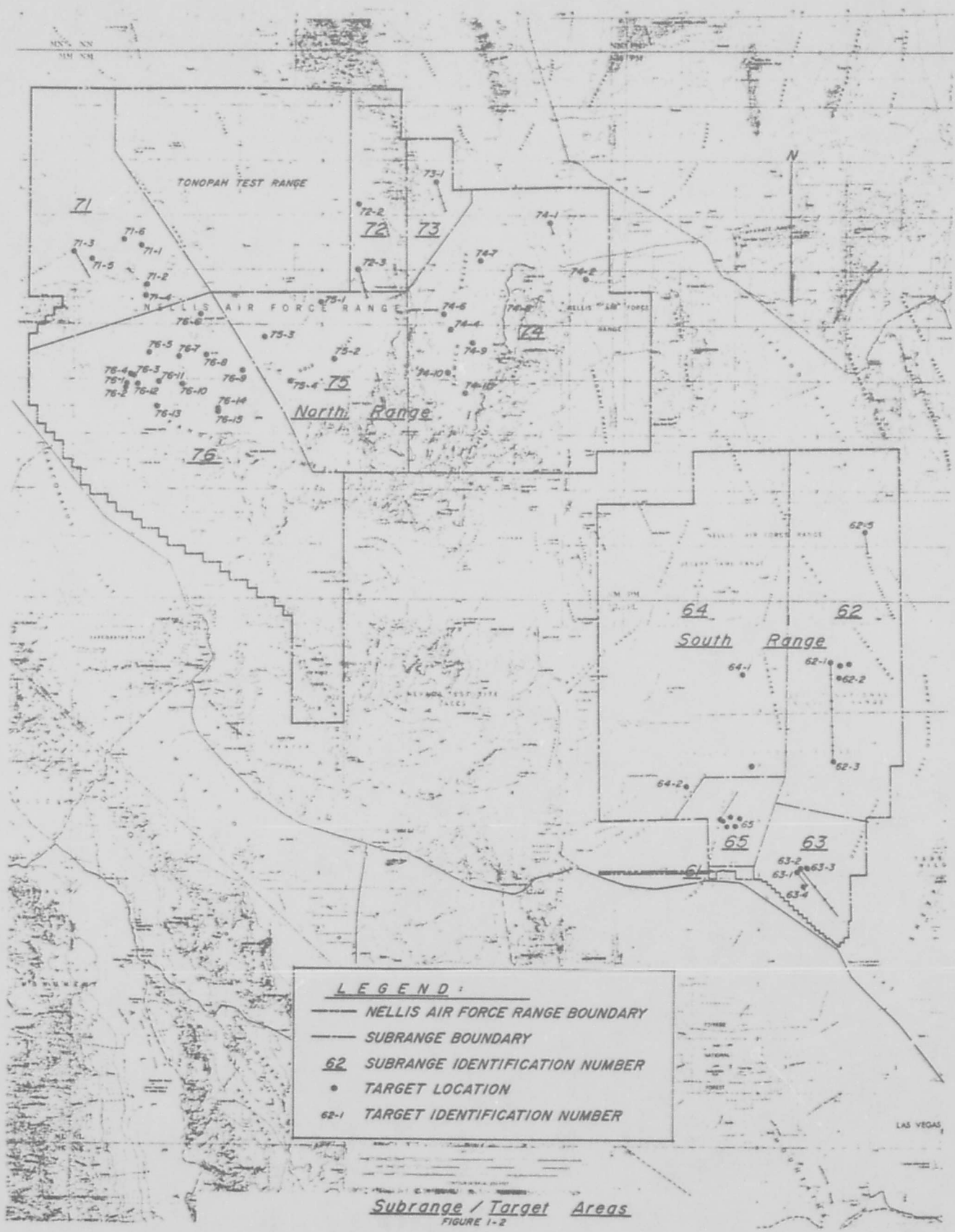
NORTH RANGE

<u>SUB RANGE</u>	<u>MAJOR USE</u>	<u>FACILITIES</u>	<u>ORDNANCE</u>	<u>TOTAL ACREAGE</u>	<u>IMPACTED* ACREAGE</u>
71	Radar Bombing	6 targets consisting of concentric circles and 2 targets of panel array	Inert ordnance except for flares, rockets and 20-30 MM ammunition	228,289	67
72	Radar Bombing	Simulated missile site and a concentric circle target including radar reflectors	Inert ordnance except for flares, rockets and 20-30 MM ammunition	92,540	251
73	Radar Bombing	Concentric circle target and three radar reflectors	Inert ordnance except for flares, rockets and 20-30 MM ammunition	49,772	76
74	Visual Bombing and Gunnery Practice	Concentric circle targets enclosed by triangles, vehicles, missile site and simulated radar antennas, convoy, airfield with aircraft, and simulated industrial complex	Inert ordnance except for flares, rockets and 20-30 MM ammunition Live ordnance used on simulated airfield	484,874	390
75	Visual Bombing and Gunnery Practice	Simulated airfield, missile sites and a convoy with simulated bridge	Live ordnance	209,582	2,054
76	Visual Bombing	Simulated industrial complex, marshaling yard and railroad depot, missile sites, convoys, airfields, forward edge of battle area (FEBA) including 180 vehicles, and electronic warfare equipment	Live ordnance	524,821	3,342

TABLE 1-2B (CONT'D)

<u>SUB RANGE</u>	<u>MAJOR USE</u>	<u>FACILITIES</u>	<u>ORDNANCE</u>	<u>TOTAL ACREAGE</u>	<u>IMPACTED* ACREAGE</u>
Air Inter- cept Missile Range	Missile Intercept Practice	Located above subranges 71 and 76	Inert ordnance except for flares, rockets and 20-30 MM ammunition		
Roads		727 Miles (excluding Tonopah Test Range)			1,234
Tonopah Test Range	(SEE TABLE 1-4)	(SEE TABLE 1-5)		369,280	1,164
Pahute MESA Underground Nuclear Testing				(Acreage Figure included in Sub-Ranges 74,75, and 76)	1,955
				TOTAL NORTH RANGE	1,959,158 10,533
				GRAND TOTAL	2,945,726 12,188

*DATA COMPILED FROM AERIAL PHOTOGRAPHS



LEGEND:

- NELLIS AIR FORCE RANGE BOUNDARY
- SUBRANGE BOUNDARY
- 62 SUBRANGE IDENTIFICATION NUMBER
- TARGET LOCATION
- 62-1 TARGET IDENTIFICATION NUMBER

Subrange / Target Areas
 FIGURE 1-2

Electronic warfare sites are mobile vans with antenna mounts. Electrical power for the units is provided by diesel generators. Electronic warfare equipment is utilized in subrange 76 at Tolicha Peak and on the Tonopah Test Range. This equipment provides an electronic environment for aircrews and simulates an environment typical of that expected in a real enemy target area. The environment includes electronic emissions from simulated enemy surface-to-air missile, radar, anti-aircraft artillery radars, and early-warning and groundbased jamming-type radar units.

Like the enemy systems, the mobile electronic warfare simulators are periodically relocated to prepared sites on the Range in order to change scenarios and prevent stereotyped training.

The current and projected Nellis AF Range utilization, by aircraft sorties (one take-off and landing equals one sortie), are shown in Table 1-3. The 57 TTW at Nellis has an assortment of aircraft that are utilized to support various TFWC missions. They currently possess 104 aircraft composed of F-4s, F-5s, F-111s, A-10s, F-15s and T-38s. "The 57 TTW flies an average of 15,000 sorties per year. About 30 percent of these utilize the Nellis AF Range, of which approximately 1,400 are flown in support of the Red Flag Exercise. An additional 5,700 transient aircraft (excluding Red Flag) pass through Nellis annually. Very few of the transient aircraft utilize the Nellis AF Range [1]." The 474th Tactical Fighter Wing (TFW) is a tenant organization at Nellis AFB and presently operates F-4 type aircraft.

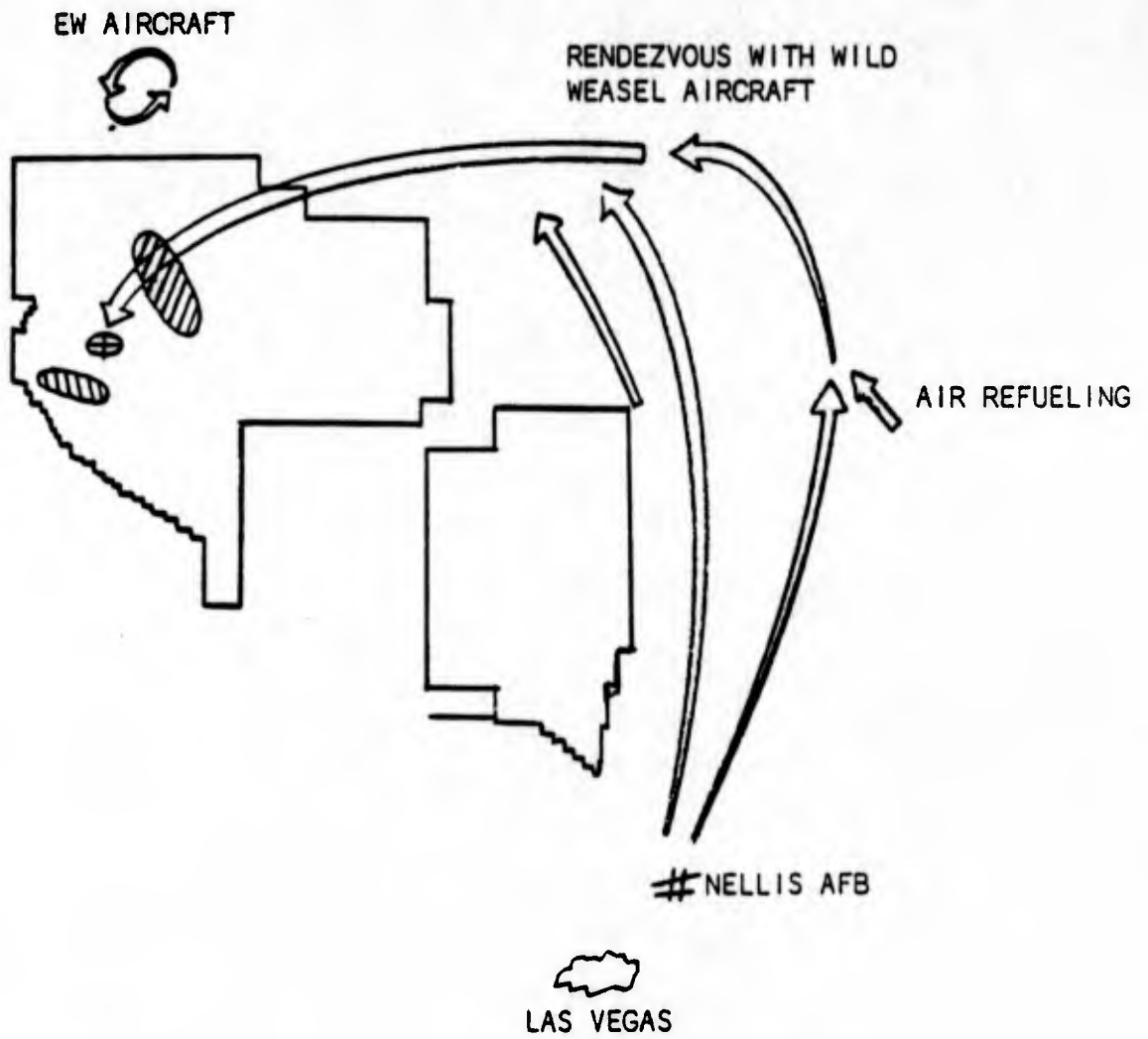
In order to fulfill the TFWC mission of aircrew training and equipment evaluations, many training exercises and test evaluations such as Red Flag, Alpha Strike, and Air Combat Evaluation/Air Intercept Missile Evaluation (ACEVAL/AIMVAL), are summarized below for the reader's understanding of the range utilization and to establish the point of departure for future range development requirements.

Red Flag exercises are scenarios of real war conditions, in which aircraft are confronted with enemy electronic warfare radar, various types of missile and anti-aircraft artillery, and aggressor aircraft threats. To stage the offensive, various types of aircraft support the primary deployed units. A representative Red Flag mission is depicted in Figure 1-3.




Table 1-3

Nellis Air Force Range Utilization by Sorties

User/Operation	1977		1978		1979		1980		1981		1982		1983		1984		1985		
	North	South	North	South	North	South	North	South	North	South	North	South	North	South	North	South	North	South	
57TTW (Nellis)	1125	3775	1125	3775	1145	3400	1182	3543	1240	3721	1302	3907	1367	4103	1436	4308	1508	4523	
474TFW (Nellis)	1250	3750	2325	5132	2458	5432	2508	5485	2508	5388	3888	8948	4039	9014	4039	9014	4039	9014	
RED FLAG Exercise	15286	804	13680	720	15200	800	13775	725	13775	725	13775	725	13775	725	13775	725	13775	725	
ALPHA STRIKE (Navy)	400	0	400	0	400	0	400	0	400	0	400	0	400	0	400	0	400	0	
ACEVAL/AIMVAL																			
Other	3750	1250	3750	1250	3750	1250	3750	1250	3750	1250	3750	1250	3750	1250	3750	1250	3750	1250	
TOTAL	21811	12079	21280	10877	22953	10882	21615	11003	21673	11084	23115	14830	23331	15092	23400	15297	23472	15512	
TOTAL North & South Ranges	33890		32157		33835		32618		32757		37945		38423		38697		38984		



LEGEND:

-  - TARGET
-  - ENEMY RADAR
-  - ESTABLISHED AIRCRAFT FLIGHT PATH

A TYPICAL RED FLAG TRAINING EXERCISE

FIGURE 1-3

The strike force (Blue Force) is assigned a specific target in the North Range. The force consisting of 12-16 aircraft configured with bombs to destroy the target, and 4-8 aircraft configured to protect the bombers from enemy aircraft, departs from Nellis. Shortly after departure, the force rendezvous with tanker aircraft to perform air refueling as would be required in a real war. After refueling, the force is joined by 4 to 8 Wild Weasel aircraft which have the mission of protecting the force from the enemy threat radar nets.

Once in the range area the strike force is vulnerable to attack by aggressor aircraft who attempt to disrupt or delay the strike force and prevent a successful attack on the target. The strike force must penetrate radars, which are positioned to protect target complex areas. Some support aircraft are configured with electronic warfare equipment used to assist the strike force penetration by countering the enemy radar threats both enroute and in the immediate target area.

The Army, Navy, Air National Guard, Air Force Reserve, Pacific Air Force, U.S. Air Forces in Europe, Strategic Air Command, Military Airlift Command and Air Defense Command also participate in Red Flag operations in order to evaluate their support functions as would be required in a real war. Integration of a total force strike also provides the forces a valid review of their equipment capability and helps develop design criteria for new equipment.

The Navy utilizes the Nellis AF Range through a program called Alpha Strike, which was established to provide combat training for naval tactical fighter units assigned to aircraft carriers. Each strike is a large-scale tactical strike operations consisting of 30-35 aircraft. Alpha Strikes are accomplished during those periods when fighter units are operating from nearby Naval Air Stations while their carriers are in port.

ACEVAL/AIMVAL was a two-part project conducted jointly by the Air Force and Navy to evaluate the aerial combat capabilities of the F-14 (Navy) and F-15 (Air Force) fighter aircraft against F-5 aggressor aircraft utilizing enemy tactics. This portion of the evaluation is ACEVAL. The AIMVAL portion was flown to obtain data that will be used to help select advanced air-to-air missiles for the two aircraft.

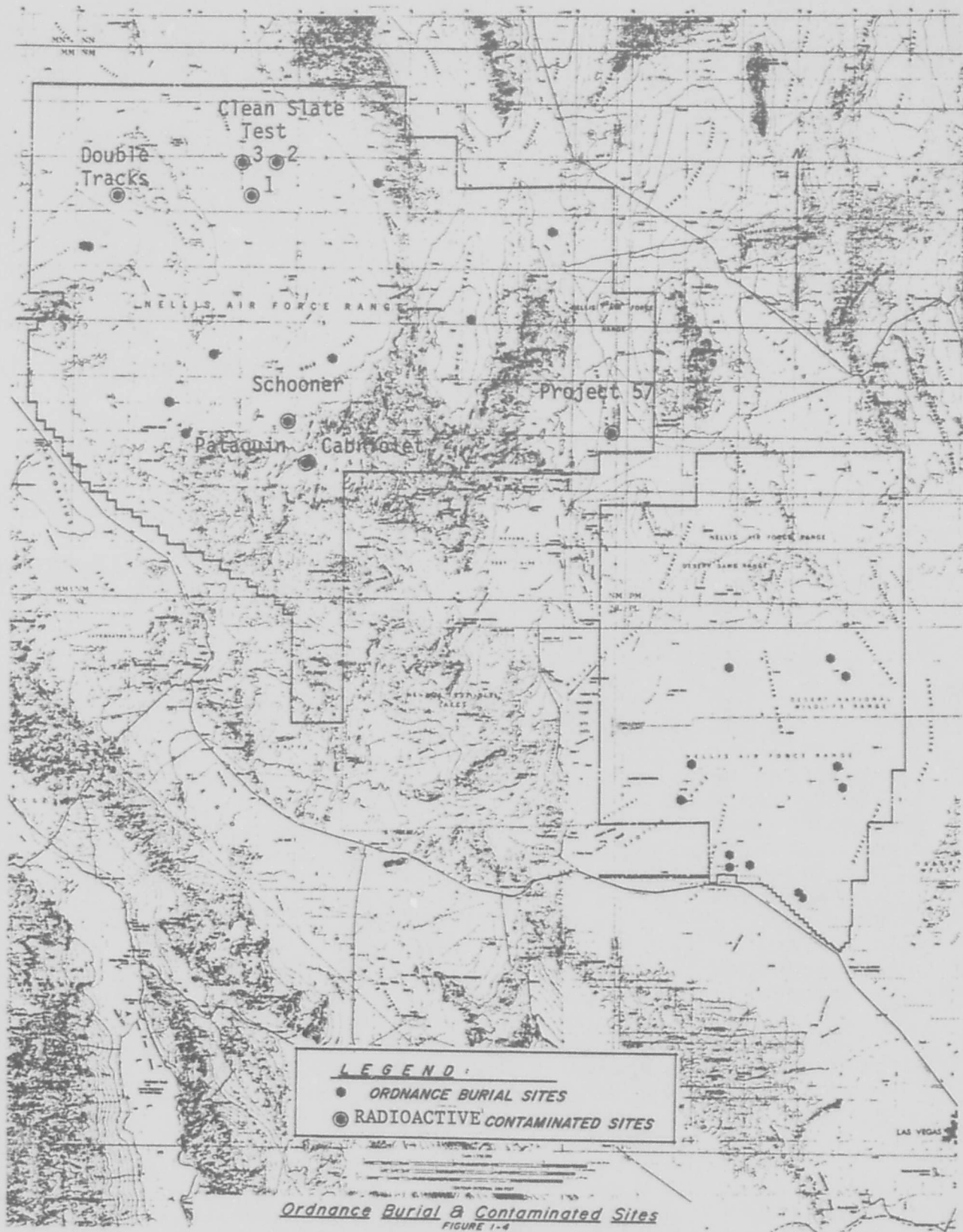
Numerous other DOD units utilize the range on a routine basis to obtain updated training for their aircrews and evaluation of their equipment effectiveness against the United States' most advance simulated enemy target complex.

Many different types of ordnance are dropped on the Nellis AF Range during air-to-ground bombing and gunnery practice missions. This ordnance can be put in two categories, live and inert. Live ordnance is filled with explosive material and is the same type ordnance that would be used in combat. Inert ordnance is shaped like live ordnance and is filled with a non-explosive material, such as concrete, to give it the same weight and aerodynamic characteristics. However, it does contain an explosive spotting charge. Inert ordnance has the advantages of lower cost, less damage to target areas and reduced range cleanup problems for explosive ordnance disposal personnel. Nearly all ordnance dropped on the Range is accomplished by aircraft operating from Nellis AFB and Navy aircraft during their Alpha Strikes. Approximately 3,000 tons of inert and 700 tons of live ordnance are dropped on the range annually.

In early years of the Nellis AF Range, live ordnance was expended against naturally occurring features throughout the area. As time progressed targets were constructed; however, once destroyed, new targets were built in other locations. Additionally, as aircraft enter the Range with live ordnance, the ordnance is armed from the cockpit. Occasionally, due to faulty trigger mechanisms, ordnance could be inadvertently dropped during the arming process.

Realizing the safety hazard involved during constructing or maintaining targets, the Air Force issued a directive in 1958 to remove debris from the target sites. In 1963 the directive was expanded and required total range clearance on an annual basis. The 1963 directive was revised in 1972 by Air Force Manual 50-46 (Training-Weapons Ranges) which required range ordnance clearance after each test or training period in the area of the target and a complete range surface clearance each five years. This change was necessary because too much aircrew training time was lost due to the range clearance program. Additionally, the size of the Nellis AF Range and limited number of ordnance personnel available for range clearance prevented full implementation of the 1963 directive. Nellis AF Range personnel initiated the 1972 requirements in early 1974 and are still in effect today. These procedures provide some degree of safety for range personnel; however, there is no guarantee that the Range is completely free of unexploded ordnance. Since 1958 range clearance activity has been only for ordnance on the surface. No subsurface clearance program has been conducted except in the immediate areas of presently used targets.

From 1958 until 1975, all ordnance collected on the Range was buried in pits on the Range (see figure 1-4 for burial site locations.) Since 1975, all ordnance of market value is deactivated and sold. The remainder is buried on the Range.



INDIAN SPRINGS AAF OPERATIONS

Indian Springs AAF provides support for the Nellis AF Range through the 57th Combat Support Squadron, the host base unit. "As an emergency airfield, Indian Springs AAF is used to recover aircraft with malfunctioning high explosive ordnance that cannot be released from the aircraft [7]." The Air Force Aerial Demonstration Squadron, based at Nellis AFB, uses airspace around Indian Springs to practice and perfect aerial maneuvers. The Airfield is approved for visual flight rule (VFR) traffic and as such, is also used for practice approaches for aircrew training.

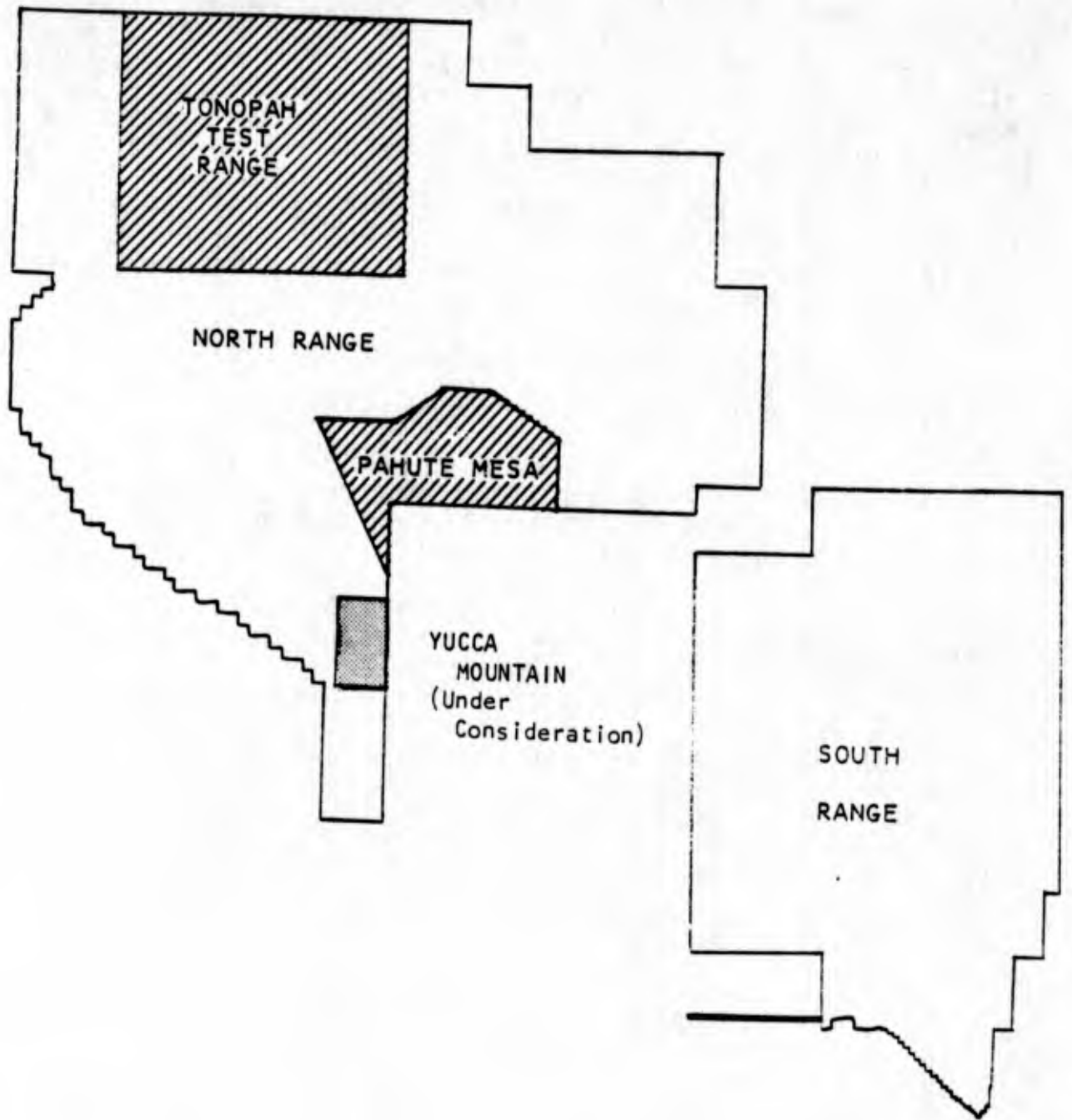
Indian Springs AAF also provides helicopter support to the DOE operators, for the control towers and transmitter station, and communications equipment repair for the subranges.

Indian Springs AAF is comprised of 2,317 acres, of which 235 acres are owned in fee and 2,082 acres have been withdrawn from the public lands. Within Indian Springs AAF there are four miles of paved roads, eight miles of gravel roads, 145,296 square feet of administrative and industrial space, seventy-nine family housing units, twenty-eight mobile home spaces, and permanent quarters for 90 single airmen and ancillary infrastructure facilities[7].

There are three runways at Indian Springs AAF. The primary runway is 150 feet wide, 7,650 feet long and has a 75 foot shoulder on each side with 1,000 foot by 150 foot asphalt overruns. The two additional runways are, respectively, 6,650 and 6,500 feet long by 150 feet wide with 75 foot shoulders and 1,000 feet of compacted gravel overruns on each end. There are 114,444 square yards of aircraft parking apron and 112, 491 square yards of aircraft taxiways [7].

OTHER FEDERAL OPERATIONS AND SITE CONDITIONS ON THE NELLIS AF RANGE

To provide for the nation's common defense and security, it is the policy of the United States to maintain a strong nuclear, as well as conventional, force to discourage attack by any potential aggressor. The DOE is responsible for conducting nuclear research and development work, and for producing nuclear weapons on the basis of requirements developed by the DOD. A principle point of field testing is the Nevada Test Site, located between the North and South portions of the Nellis AF Range. DOE operations are also conducted on public lands withdrawn by the Air Force; specifically, the Tonopah Test Range and Pahute Mesa. (See figure 1-5.) Use of these areas is governed by MOUs.



DEPARTMENT OF ENERGY LAND USE AREAS
FIGURE 1-5

The TTR is operated for DOE by the Sandia Laboratories. "Their principal responsibility is research and development of nuclear ordnance; the arming, fusing, and firing systems used in nuclear bombs and warheads. In addition, Sandia designs bomb casings for the weapons which would be dropped from aircraft [9]."

Table 1-4 lists Sandia's major test activities and provides a brief review of the frequency and type of operations conducted on the TTR. Table 1-5 gives the major use areas of the TTR and briefly enumerates the type of facilities and current damaged acreage. Figure 1-6 shows the geographical layout of the TTR. A point of special interest concerning existing site conditions and operations of the TTR centers around radioactive testing.

In 1963 a series of four safety tests, collectively called Roller Coaster, were conducted to study plutonium dispersal from explosion of plutonium bearing weapons. These tests (Double Tracks, Clean Slate 1, 2, and 3) were conducted on TTR. Another safety test (Project 57) was conducted in 1957 at the Southeast corner of the North Range. (See figure 1-4.)

The Double Tracks test utilized plutonium, whereas the latter three (Clean Slates) had depleted uranium substituted for part of the plutonium. Although no serious scattering resulted from these tests, some residual radioactive contamination remains in the area. The affected areas, totaling 193 acres for the Roller Coaster test and 130 acres for Project 57, have been fenced off at the 1000 ug/m² radioactive contamination contour as a measure of safety. "Evaluation conducted in 1970 showed it would be more environmentally sound to leave the areas undisturbed because the required denudation would be worse than the existing condition [9]."

Individual experiments are carried on at the TTR involving such materials as beryllium and uranium. These are monitored to insure personnel safety and to meet the scientific purposes of each experiment. There is no single pattern for monitoring these various experiments; each monitoring scheme is tailored to its experiment. By way of example, the following discussion describes the monitoring program associated with the Nonviolent Explosive Destruct System (NEDS) experiments.

The NEDS experiments were part of a program to design, fabricate, and test a transportable container that would retain the shrapnel, radioactive and toxic debris, and gaseous products produced by the one-point initiation of the high explosives in a nuclear weapon. In the mock-ups used in the TTR development testing, fissile materials were not present, but there may have been as much as 10 kilograms of depleted uranium or a kilogram of beryllium present. These could have been dispersed downwind from such a test if the container failed.

TABLE 1-4

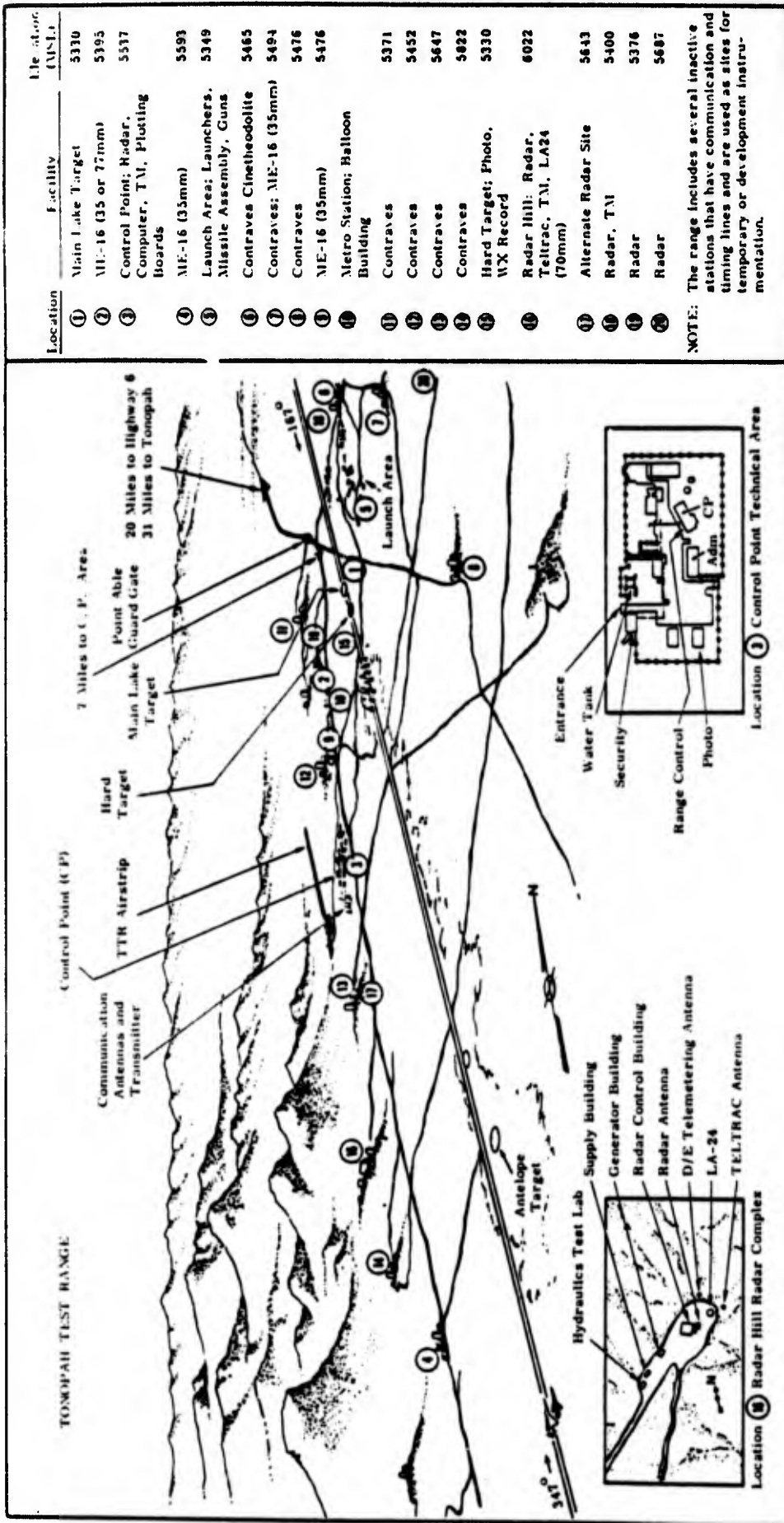
TONOPAH TEST RANGE ACTIVITIES

<u>ACTIVITY</u>	<u>FUNCTION</u>	<u>REMARKS</u>
Air Drops	Trajectory Study of Simulated Bombs and Weapons	Approximately 130 per year on designated targets. 30 to 35 drops are with bombs that contain high explosive or beryllium
Gun Firings	Firing of 155 MM and 8 inch projectiles	Approximately 150 firings per year. Firing is from area 9 with impact points 7,000 feet and 40,000 feet down wind. Many rounds have parachute recovery systems
Ground Launched Rockets	Antiaircraft rockets launched to study aeroballistics and material properties. Also study earth's magnetic field and high-altitude winds	Launch 8 rockets per year from area 9
Air-Launched Rockets	Launching of rockets from aircraft	Launch about 6 rockets a year at an altitude of 6,000 feet
Explosion Effects	Optimize design of shipping and storage containers for nuclear weapons	On-going program
Static Rocket Test	Assist the Navy in developing the trident submarine program	A static rocket motor test pad was constructed and is on stand-by for future Navy use
Earth Penetrator Test	Pioneering study of earth surface to determine deceleration characteristic of high velocity penetrators	Approximately 10 test conducted per year for the Sandia Terradynamics program

TABLE 1-5

TONOPAH TEST RANGE FACILITIES

<u>AREA</u>	<u>USE</u>	<u>FACILITIES/TEST</u>	<u>IMPACTED ACREAGE</u>
Area 3	Control point	Has about 12 buildings which house administration, operational control, computer analysis and control, telemetry decoding and recoding, and maintenance support operations	58
Area 9	Rocket launch and gun firing	4 large buildings, 3 block houses, several explosive storage, 4 rocket launchers, 2 gun barrel mounts, 3 camera towers and telemetry antennas, and a 300 foot weather tower	45
Target Areas	Bomb drops	Hard target, soft target, main lake, rodden, mid, pedro, antelope, and rock target. Target complexes contain locations for telescopes, phototheodolites, radar, and telemetry	74
Radio-active test areas	Evaluations	Tests conducted include: Nonviolent explosive destruct system (NEDS); Clean slate 1, 2 & 3; and double track	193
ROADS	-	381 miles of paved, unimproved and dirt roads	647
Aircraft runways	-	1 paved runway; 6 unpaved (abandoned)	147
TOTAL ACREAGE OF THE RANGE: 369,280 acres			TOTAL 1,164



Location	Facility	File # (MPL)
①	Main Lake Target	3330
②	MI-16 (35 or 77mm)	5395
③	Control Point; Radar, Computer, T.V. Flushing Boards	5537
④	MI-16 (35mm)	5593
⑤	Launch Area; Launchers, Missile Assembly, Guns	5349
⑥	Contraves Cinetheodolite	5465
⑦	Contraves; MI-16 (35mm)	5494
⑧	Contraves	5476
⑨	MI-16 (35mm)	5476
⑩	Metro Station; Balloon Building	
⑪	Contraves	5371
⑫	Contraves	5452
⑬	Contraves	5647
⑭	Contraves	5822
⑮	Hard Target; Photo, WX Record	5330
⑯	Radar Hill; Radar, Teltrac, T.M., LA24 (70mm)	6022
⑰	Alternate Radar Site	5643
⑱	Radar, T.M.	5400
⑲	Radar	5376
⑳	Radar	5607

NOTE: The range includes several inactive stations that have communication and timing lines and are used as sites for temporary or development instrumentation.

FIGURE 1-6 Plan View of the Tonopah Test Range

Source: Reference 4.

The NEDS tests were normally conducted in the late morning hours, while the winds were moderate, in order to keep atmospheric potential gradients at a minimum. Two high volume air samplers were deployed in the upwind and downwind camera bunkers about 75 feet away. Thirty-minute samples were taken prior to, during, and after each test. The filters were analyzed for gross alpha with portable instruments immediately after re-entering the area. The re-entry party, which delayed five minutes after the test before re-entering, wore protective clothing and full face respirators until it was established that no appreciable contamination exists. In the event of possible beryllium contamination, a swipe analysis was made in the field; but in any case, the filters and swipe samples were removed to Sandia Laboratories for more accurate alpha, beta-gamma, and beryllium level determinations.

In addition to DOE using the TTR, in November, 1963 AEC and the Air Force entered into an agreement for their use of the Pahute Mesa Area (See figure 1-5). The area is approximately 167,960 acres and is used to conduct underground explosion testing. About 30 large diameter, vertical drill holes have been constructed in the past (See figure 1-7). DOE reserves the right to continue drilling operations for future test activity in the area. If the area is withdrawn, then DOE must obtain an MOU between the Air Force and BLM for any use of this land which is not identified in the legislation.

The emplacement holes vary in diameter from 30 to 96 inches and depth from a few hundred to nearly 4,400 feet. Most of the holes were cased throughout their depth with heavy steel liners which permit the safe emplacement of the nuclear devices to be tested. After the cased holes are securely refilled to contain the effects of the explosion underground, the devices are detonated and necessary test measurements obtained. Numerous smaller (9 to 15 inch) diameter exploratory holes have been drilled to provide ancillary information of the geology, hydrology and post-event conditions [3].

From 1965 through 1968, there were three cratering tests, Schooner, Cabiolet, and Palaquin (see figure 1-4) conducted in the Pahute Mesa area. Close-in areas around the test were completely denuded, or the vegetation smothered under the ejecta from the crater. Due to these three tests, a total of 2,496 acres of land have been contaminated with Cesium-137, Strontium-90 and other fission products along with some other unburned fission fuels. The areas have been posted and fenced at the 5 millirem/hour radiation contour to assure personnel safety. The areas are evaluated each year under DOE's radiation safety program.

Construction of roads and support facilities to conduct the underground tests at Pahute Mesa has resulted in altering

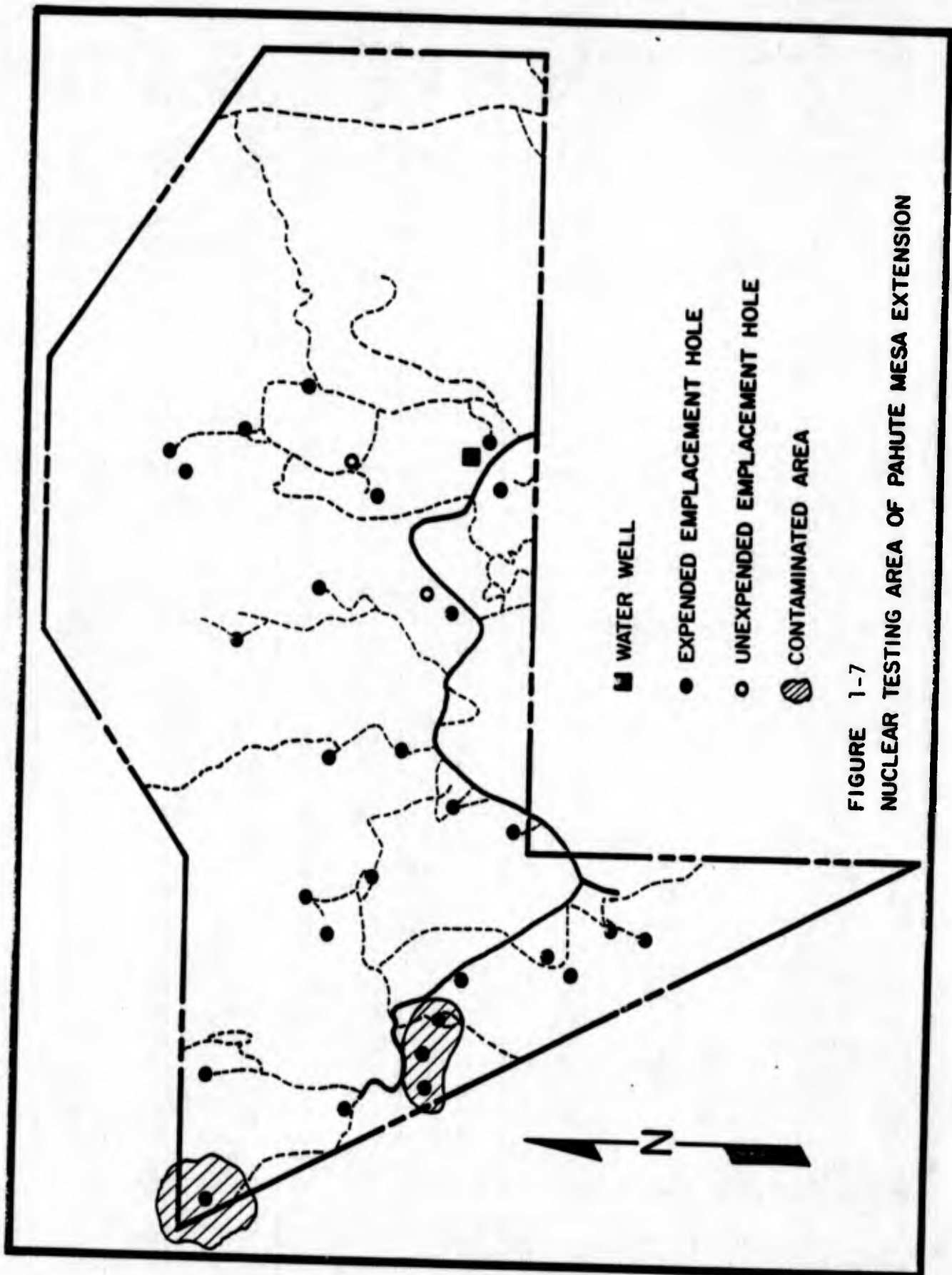


FIGURE 1-7
NUCLEAR TESTING AREA OF PAHUTE MESA EXTENSION

530 acres of wildlife habitat through earth moving and resurfacing activities. The total impacted acreage on Pahute Mesa, excluding the radioactive contaminated areas, is approximately 1,955 acres. There have been other minor impacts to the landscape (survey traffic, instrumentation emplacements, and monitoring at off-road locations) which are of a less enduring character.

FUTURE DEVELOPMENTS AND OPERATIONS

Since the proposed withdrawal would be for a 15 year time period with a 10 year renewal option, it is not possible to describe all activities, tests, and programs in this document which will be conducted during the withdrawal period. As national defense requirements change, programs will have to be modified, deleted, and new ones developed. Some of the actions described below are at the concept stage of planning, and as such, the environmental consequence will require a more indepth analysis prior to initiating the action.

U.S. AIR FORCE

To assure a strong National defense, new weapon systems must be developed to counter any potential enemy threat. Successful deployment of the new systems mandates that they be operationally evaluated and aircrews trained in the type of threat environment in which the systems will be utilized. To prevent stereotyped scenarios and to improve realism during training or exercise missions, realistic targets (fixed, movable, and mobile) will have to be developed.

Table 1-6 shows the future projects to be developed on Nellis AF Range.

The TFWC projects no change other than road improvements in the South Range target complexes. However, to support operational readiness training, they have identified the need to expand the electronic warfare (EW) threat capability on the North Range. Currently, there are 20 pieces of EW equipment located on the TTR and in subrange 76 at Tolicha Peak. By 1983, the TFWC projects adding 53 more systems to the North Range. Although no specific sites have been identified for this equipment, present planning indicates they will be located in subranges 71, 72, 73, and 75. Current targets on subranges 72 and 73 (see table 1-2) will be deleted and the new EW equipment installed. Each equipment site will require about 7,850 sq. ft. of land. Projecting this footage requirement for the 1983 forecast shows that approximately 10 acres of vegetation and habitat will be removed in the future.

Siting of the targets has not been accomplished; however, for purposes of environmental evaluation, it is assumed each site would require approximately one mile of new road.

TABLE 1-6

FUTURE PROJECTS FOR THE NELLIS AF RANGE

Projects	Location	Scope	Estimated Impact Acreage	Impact by Vegetative Community (Acres)					
				Southern Desert *	Salt Desert *	Northern Desert *	Pinon-Juniper *	Barren*	
Electronic Warfare Sites	North Range	53 sites	200	-	200	-	-	-	-
EM Maintenance Complex	North Range	34,350 sq ft	4	-	4	-	-	-	-
Electric Line	North Range	5 Miles	60	-	60	-	-	-	-
Road Repairs	North Range South Range	235 Miles 80 Miles	435 150	- 140	425 -	10 -	- -	- 10	- 10
Under Ground Nuclear Testing	North Range (Pahute Mesa)	Continuing	150/Shot	-	6,000	450	300	-	-
Terminal Nuclear Waste Disposal Site Evaluation	North Range (Yucca Mt)	Exploratory Drilling	50	-	-	-	-	-	-
Totals				140	6,689	460	300	10	
% by Range				0.02	0.40	0.23	0.45	0.04	

* Southern Desert Shrub - 642,914 acres on South Range; 7,450 acres on North Range
 Salt Desert Shrub - 321,382 acres on South Range; 1,667,128 acres on North Range
 Northern Desert Shrub - 201,130 acres on North Range
 Pinon-Juniper - 67,044 acres on North Range
 Barren - 22,273 acres on South Range; 16,406 acres on North Range

Considering a 14' wide road, and an impact zone of 30 feet for construction, the estimated acreage involved would be 190 acres, or 200 acres for the sites and roads.

In order to maintain and operate the EW sites, the Air Force plans to construct support facilities near the TTR and in subrange 76 at Tolicha Peak. At the TTR site a 34,350 sq ft pre-engineered maintenance complex with space for operations and administration, maintenance of vehicles, electronic gear and generators will be constructed. Depending upon final site location, about five miles of above ground electrical transmission line, a water well and storage tank with distribution lines would have to be installed. Sanitary waste from the facility would be treated before disposal into an evaporation pond.

It is projected about 800 personnel will be required to maintain and operate the EW sites; 630 for the TTR area and 170 for the Tolicha Peak operations. Currently there are 170 Air Force personnel operating the sites at TTR and 70 at Tolicha Peak. The TTR and Tolicha Peak personnel live at Tonopah and Beatty, respectively.

In consideration of the projected manning requirement, the TFWC is evaluating range operations to determine the feasibility of contracting the range operations versus continued use of military personnel. The latter alternative may have up to three options: (1) add the additional personnel into Tonopah and Beatty, (2) build a remote military base, and (3) build dormitories on the range at TTR and Tolicha Peak. Although options (2) and (3) may be determined unfeasible, the latter does represent the worst case adverse socio-economic condition and therefore will be used in this document to describe maximum impacts that would be experienced by continued range operations.

Approximately 315 miles of existing road will be upgraded throughout the North and South Range (see figure 1-8) to provide better access to target areas for maintenance and service operations. The roads have been constructed over the years with many different widths; this project will reduce the road widths to 14 feet. In an estimated 75% of the roads, the shoulders and drainage ditches will be within the existing established roadway. The remaining 25% will require widening from 4 to 8 feet in order to construct proper drainage to prevent erosion. The road repairs will require 268,380 cubic yards of base coarse material and 24,692 cubic yards of crushed gravel. It is estimated that 40% of the required base coarse material and all of the crushed gravel will have to be manufactured. Final site selections for these materials will not be made until proper environmental surveys are completed. The FWS proposed wilderness area will not be affected by the road construction nor will gravel sites be located therein.

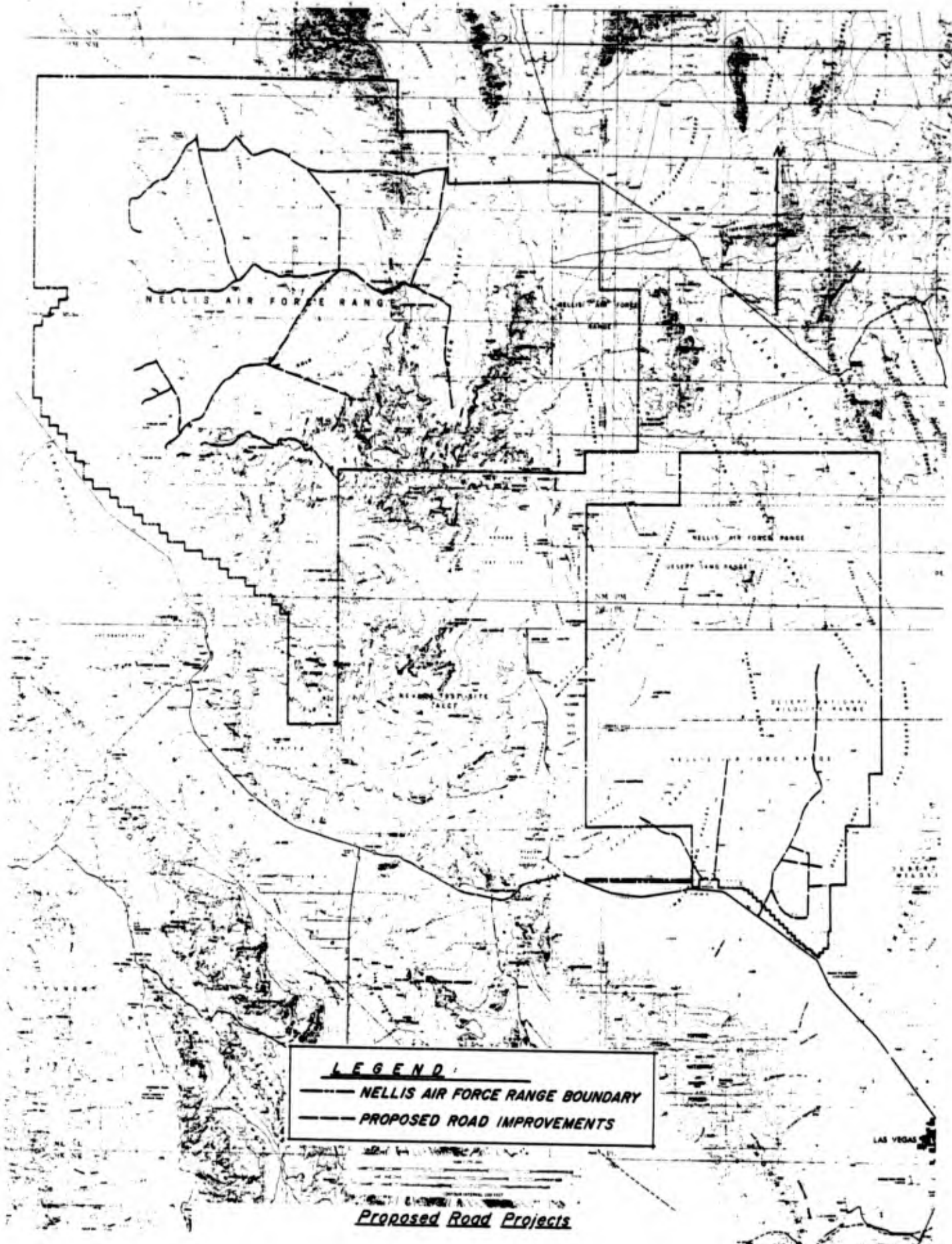


Figure 1-8

The projected aircraft sorties are provided in Table 1-3. This table reflects a total increase in range use of fifteen (15) percent. Figures for the 474 TFW and 57 TTW incorporates sorties for special test (such as electronic warfare-close air support and tactics development) and normal pilot training.

DEPARTMENT OF ENERGY

There are no projected changes in the current operations of the TTR. They will continue to utilize the same facilities and currently impacted areas.

DOE underground nuclear testing at Pahute Mesa is expected to continue at about the same pace as in past years; about three to six shots per year. These shots will utilize, to the maximum extent possible, areas already impacted from previous tests.

The DOE is examining the geology of Yucca Mountain (that portion on the Nellis AF Range) as well as other areas on the NTS, as a potential site for a terminal waste disposal repository.

Recent projections of growth, in the use of commercial nuclear power reactors and recent Federal policy decisions concerning the commercial nuclear fuel reprocessing plant availability, indicate significant delays for the anticipated production of high-level radioactive waste.

As a result, priorities for managing radioactive waste have been reoriented to include retrievable storage as an adjunct to terminal disposal in geologic formations. However, terminal disposal is considered a vital program and needs to be developed by DOE. DOE has conducted exploratory drilling into the welded tuff structure of Yucca Mountain and conducted surface geophysical measurements on the part of Yucca Mountain which extends onto the Nellis AF Range. Black Mountain may also be considered in the future.

If the exploratory surveys show favorable conditions at Yucca Mountain and DOE decides to continue other investigations, rock properties and hydrologic phenomena will be studied at depths of several thousand feet beneath the surface from vertically drilled holes. Depending upon these studies, several mined test chambers within the formations could be constructed. Electrical and radioactive heat sources would be placed in the test chambers within drilled holes and the combined heat and radiation effects upon the media would be studied.

Since such projects are at the concept state, DOE will prepare an environmental statement to evaluate the environmental impacts anticipated, as a part of the decision making process.

INTERRELATIONSHIPS

FISH AND WILDLIFE SERVICE - DESERT NATIONAL WILDLIFE RANGE

The South Range coincides with the western half of the DNWR. (See figure 1-9.) The DNWR consists of approximately 1,588,000 acres and is managed by FWS. "The primary management objectives within the wildlife range are to preserve and protect natural environmental qualities vital to the perpetuation of optimum population of desert bighorn sheep and other native wildlife. Periodic resource inventories, applied management research, limited water development and maintenance, fire suppression, and routine patrol are necessary management activities [8]." The FWS has proposed 1,332,900 acres of the DNWR be designated as a unit of the National Wilderness Preservation System. The Wilderness Act of 1964 directed the Secretary of Interior to review every recommendation as to the suitability of each such area for designation as a wilderness. Final decision of the wilderness proposal has been postponed until surveys for mineral resources are completed.

Before, during, and after World War II, there were numerous military withdrawals affecting the DNWR. PLO 2613, dated February 16, 1962, made all outstanding military withdrawals subject to the terms and conditions contained in the January 20, 1961 MOU between the Secretaries of the Interior and Air Force. "The agreement specifies that only certain locations within the Range may be used for target sites. These locations total approximately 16 percent of the DNWR. The remaining portion of the South Range, coincident with the DNWR, is authorized for use as air space only [8]."

Target facilities, in general, are restricted to lands below the 3,600 foot elevation contour line. Aircraft are restricted, when practical, to a minimum of 2,000 feet above ground level except when landing or taking-off at Indian Springs AAF and when using air-to-ground targets. Air-to-air gunnery operations were required to be conducted at an elevation of 10,000 feet above ground level.

The Air Force also agreed in the 1961 MOU to furnish FWS, when available, aircraft and other equipment and operating personnel for the purposes of aerial patrol, search and rescue, maintenance of the Range, wildlife inventory, waterhole inspection, and other wildlife management practices on the Range. These agreements were also incorporated in the updated MOU signed by the Air Force and FWS in February, 1976 and March 1976, respectively [23].

BUREAU OF LAND MANAGEMENT WILD HORSE RANGE

The Nevada Wild Horse Range is located in the north central portion of the Nellis AF Range. (See figure 1-9.) The Wild Horse Range is managed by the BLM and has been established for the protection of wild horses and burros.

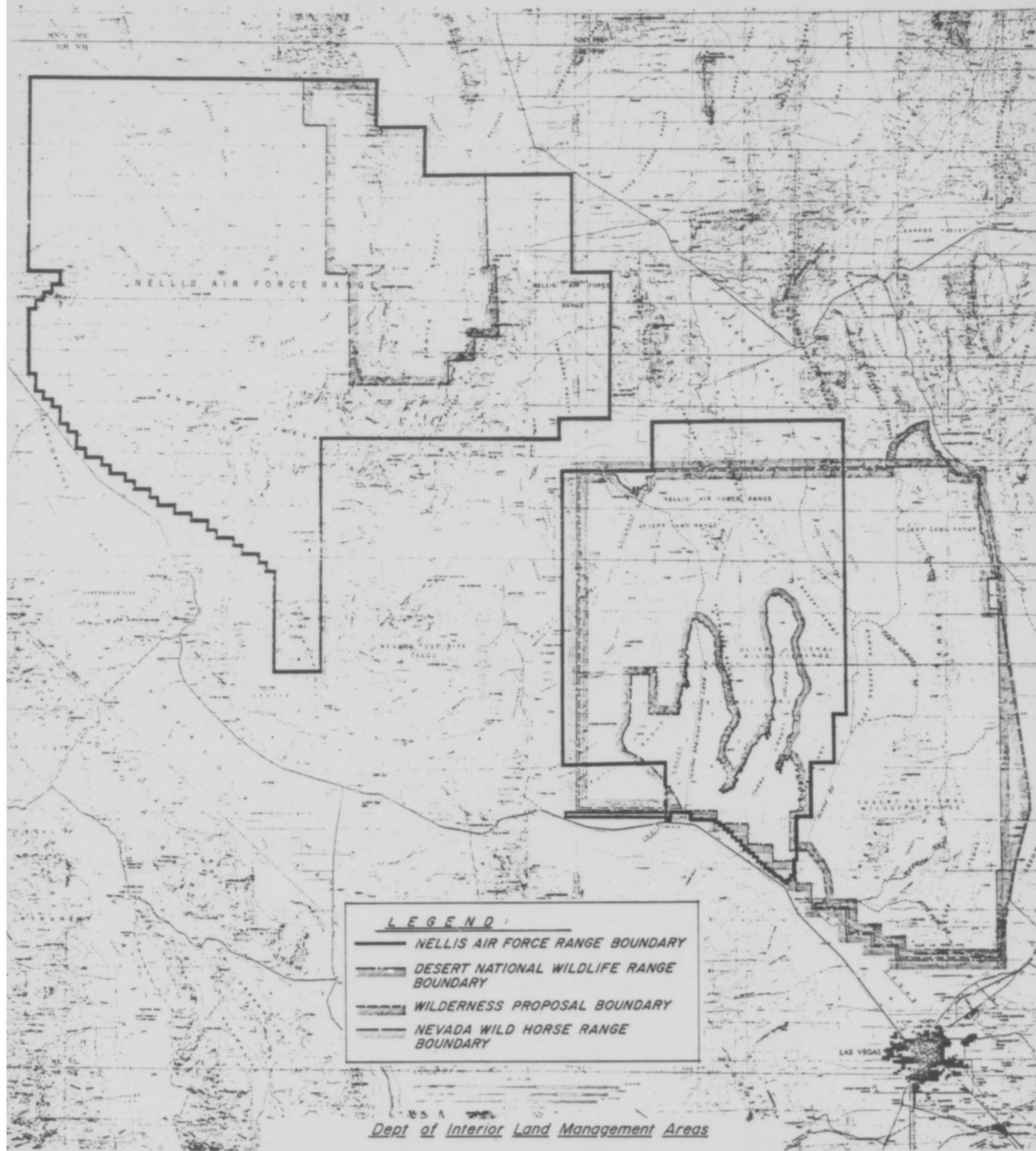


FIGURE 1-9
 1-33

An agreement between BLM and the Commanding Officer of Nellis AFB was signed in June 1962 to establish a Wild Horse Range. An additional agreement containing the same provisions, but modifying the location of the Wild Horse Range, was implemented in June 1965.

In 1971, P.L. 92-195 was passed to protect wild horses and burros. The Law requires observation of the principles of multiple use, sustained yield and environmental quality. It is also dedicated to protect them from unauthorized actions and to manage their habitat in a manner to achieve and maintain an ecological balance and a population of sound, healthy individuals. In 1974, a cooperative agreement was signed by the DOI, ERDA (now DOE), and the Air Force to establish responsibilities relative to managing the Wild Horse Range. The developed management plan requires: An annual inventory of the wild horses and burros in the area of joint concern; continuing review of the habits of the wild horses and burros in terms of grazing and water patterns, seasonal migration, and the availability of water and forage; and determination of the necessary projects, such as water, fencing, etc., to provide for the welfare of the animals.

Nellis AFB's responsibilities in the 1974 agreement are to cooperate in the removal of privately owned horses and burros, assist in the annual review of the management program, and to report any known violations of the Act or regulation to the Las Vegas District Manager of BLM.

FIVE PARTY COOPERATIVE AGREEMENT

Under the purview of NEPA of 1969 (PL 91-190), Endangered Species Act of 1973 (PL 93-205), Wild Free-Roaming Horse and Burro Act of 1971 (PL 92-195), Taylor Grazing Act of 1934 as amended by PL 94-579, Public Land Administration Act of 1960, (PL 86-649), and under the principles of multiple use and sustained yield as defined in 86-517, a five party cooperative agreement was signed on January 27, 1977 by the Air Force, BLM, FWS, Nevada Department of Fish and Game, and ERDA (now DOE). The agreement was instituted for the purpose of protecting, developing and managing the natural resources, fish and wildlife, vegetation, watershed and wild horses and burros on the Nellis AF Range, NTS, and TTR.

The joint parties agree to:

- Cooperate in conducting resource inventories of the area and developing resource management plans for wild horses and burros, and fish and wildlife based on the inventory data.

- Meet jointly, at least annually, to discuss matters relating to the management plans.

- Allow hunting on the Range when game population and Air Force activities will allow. Hunting is in accordance with Federal and State game laws.

RELATIONSHIP OF THE ACTION TO LAND USE PLANS, POLICIES AND CONTROLS FOR THE AFFECTED AREA

The land comprising the Nellis AF Range is public land, the North Range is under BLM control and the South Range is under FWS jurisdiction. Various portions of the Range have been withdrawn from the public domain since the early 1940s; with the present acreage remaining fairly static since 1962. The withdrawal granted DOD use of the land for a bombing and gunnery range. BLM has not forecast change of use for these lands, but FWS has proposed a major portion of DNWR as a wilderness area.

Additionally, land use plans, policies, and controls have been implemented through the various cooperative agreements that have been signed with the DOI, State agencies, DOE, and other concerned agencies. Continuation of the withdrawal would assure stability to the management programs covered in these agreements.

Recreational requirements for the state have been reviewed by the Nevada Department of Conservation and Natural Resources (NDCNR). None of the twenty-four sites identified for future development are on or adjacent to the Nellis AF Range; however, Nellis AFB aircraft may fly over some of the land while enroute to, or returning from, the north section of the Range.

With respect to potential noise disturbances, the character of Nellis AF Range activities over these recreation areas will be important to the planned future development of these areas. Consultation with state and local planners regarding the plans and policies for recreational developments will be essential to avoid incompatibilities between Nellis AF Range airspace uses and underlying recreational uses.

Based on population growths (see table 2-9), Clark County is growing faster than any of the other counties in which the Range is located. Clark County's growth is primarily from the Las Vegas area. Las Vegas is about 30 miles from the closest point of the Range. With this distance it is doubtful that urban growth would become a factor of concern in the continued use of the Nellis AF Range.

Three airports operate in close proximity to each other in the Las Vegas area; Nellis AFB, North Las Vegas Airport, and McCarran International. These airports form a triangle whose sides measure only 8, 8, and 10 nautical miles respectively. They cater to the military (Nellis), general aviation (North Las Vegas), and air carriers (McCarran). Their proximity to each other, the relationships of their runways, the diverse types of aircraft using them, and the volume of air traffic that each generate combine to produce a congested air traffic control environment. To cope with this issue, letters of agreement between the controlling agencies at each installation establish compatible use zones and air traffic control procedures which enable safe and efficient air traffic flows.

CHAPTER II

DESCRIPTION OF THE ENVIRONMENT

This chapter discusses the existing environment of the Nellis AF Range. The resources are described at the level of detail commensurate with the anticipated impacts. The natural environment is subdivided into climate, air quality, geology, soils and watershed, vegetation, and animals. Similarly, the human environment is subdivided into cultural values, visual, land uses and plans, and socio-economic factors.

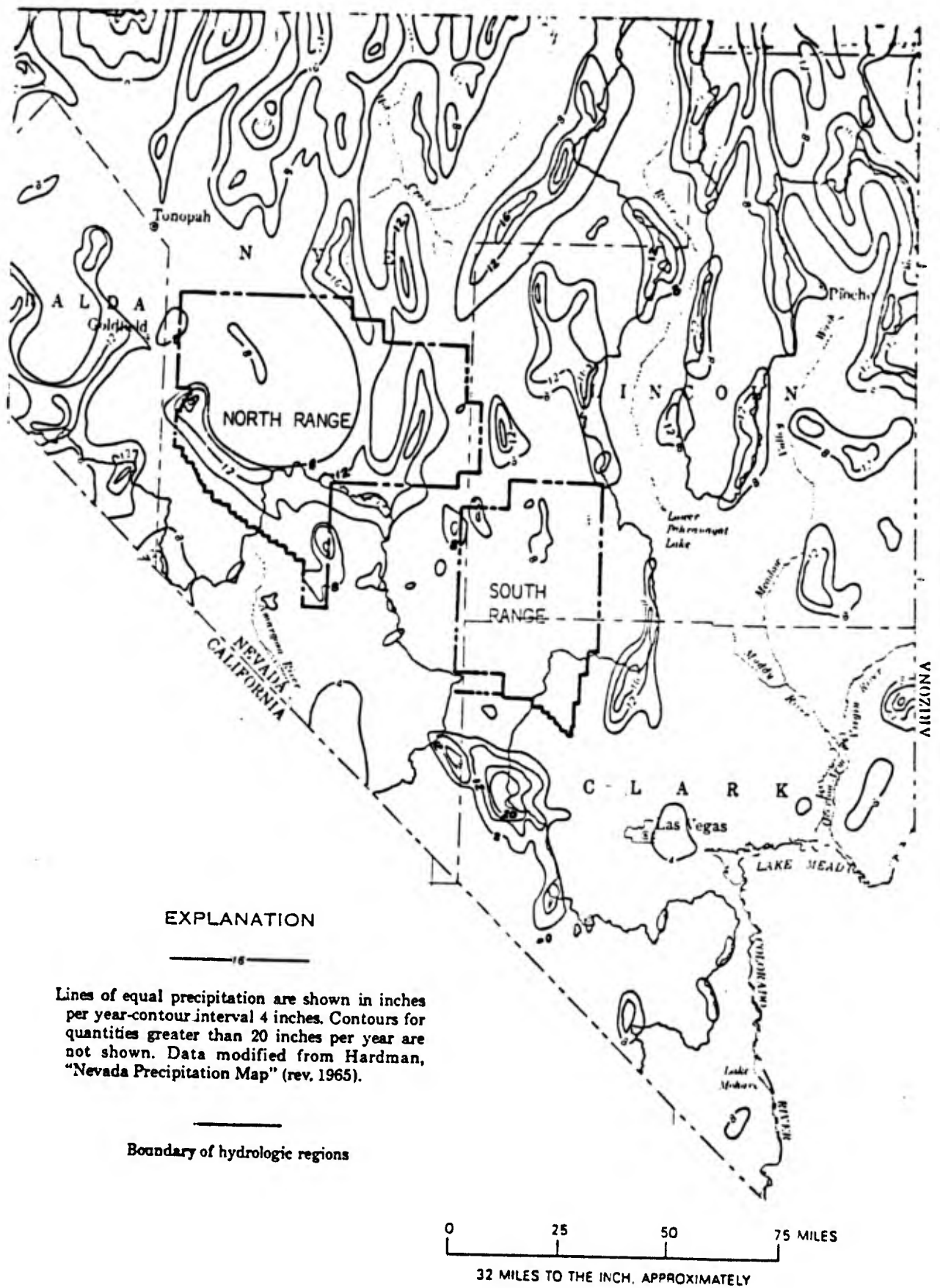
CLIMATE

The climate in the area of the Nellis AF Range is affected by two main sources of air movement. From fall through spring the area is influenced by Pacific air movements which come across the Sierra Nevada mountains. In summer to early fall winds from the Gulf of Mexico dominate the area.

Annual precipitation depends mainly on elevation and varies on the average from four inches on the desert floor to about 12 inches in the higher Mesa area. (See figure 2-1.) "The annual precipitation cycle displays a double maximum, with the primary in winter and secondary in the summer. Winter precipitation often falls as snow (at higher elevations), whereas summer rains are associated with thunderstorms which are intense enough at times to produce local flash flooding [3]."

The hottest months of the year are July and August with average monthly temperatures of about 76 Fahrenheit (F). Daily temperatures rise to the 90's and drop to the 50's at night. The average monthly winter temperature falls between 31F and 41F. The relative humidity averages 58 percent in the early morning, dipping to an average daily low of 25 percent by late afternoon.

An assessment of the meteorological potential for pollution can be made quantitatively using the results of Holzworth's studies [10]. However, because of the variable terrain over the ranges, significant deviations from average values can occur. Mixing heights average about 1,100 feet in the morning and 8,000 feet in the afternoon. Wind speeds range from 9 to 11 miles per hour in the morning to 11 to 13 miles per hour in the afternoon. With moderate to strong insolation throughout the year, stability ranges from slightly to moderately unstable from midmorning to late afternoon and becomes neutral in the early evening hours. Overall, dispersion characteristics are good to fair. During the period from October 1963 to April 1970, the National Climatic Center issued pollution potential forecasts approximately 35 times over the area. The highest potential will exist in valleys; however, even here, wind direction must be considered in individual



AVERAGE ANNUAL PRECIPITATION

FIGURE 2-1

cases to arrive at qualitative figures. The highest potential exists during the winter months, December through February.

AIR QUALITY

The Nellis AF Range is located within two Air Quality Control Regions (AQCR). The Clark-Mohave Interstate AQCR boundary coinciding with the county boundary common to Lincoln and Clark, and the western boundary common to the Nye and Clark County Line. The remainder of the Nellis AF Range is located within the Nevada Intrastate AQCR (See figure 2-1 for county lines.)

There are no monitoring sites on or adjacent to the range to measure ambient air quality. However, in a general manner, the regional condition is portrayed in tables 2-1 and 2-2. Table 2-3 shows the respective Federal and Nevada State Air Quality standards which are applicable to the area. Table 2-1 shows the number of stations within each AQCR which exceeded the ambient air quality standards during 1974 and 1978. It is evident that the Clark-Mohave AQCR has particulate, carbon monoxide, and oxidant problems; whereas the Nevada Intrastate problem is with particulates and sulfur oxides. Review of the individual monitoring stations within each AQCR shows that the regional pollution burden comes primarily from the metropolitan area. The 1974 data provided in table 2-2 show monitoring sites in rural parts of Clark and Nye counties had a marginal particulate matter problem. Clark county did not exceed the 24 hour primary particulate standard; whereas, Nye County rural sites exceeded the 24 hours primary standard five times during 1974. Both counties appear to have met the annual particulate standard during 1974 and 1978.

The Environmental Protection Agency (EPA) review of states attainment status of the National Ambient Air Quality Standards (published in the Federal Register, Vol. 43, No. 43, March 3, 1978) indicate the following air quality picture for the Nellis AF Range area: particulates and sulfur oxides are lower than the National standards; and carbon monoxide, nitrogen oxides, and oxidants are lower than the standards or cannot be classified.

The Las Vegas Metropolitan Area (in Clark-Mohave AQCR) has been designated as an Air Quality Maintenance Area (AQMA) for particulates, oxidants, and carbon monoxide. Nellis AFB is within the boundaries of the AQMA; however, the Nellis AF Range is well outside the delimited area.

The majority of military aircraft using the Nellis AF Range depart from and return to Nellis AFB. Although military aircraft are exempt from emission regulations promulgated under the purview of the Clean Air Act, those emissions emitted within the AQMA are of concern to the Air Force. A detailed review of aircraft emissions around Nellis AFB is given in Chapter 3, page 3-3 to facilitate defining secondary impacts from operations of the Nellis AF Range.

TABLE 2-1

NUMBER OF STATIONS AT WHICH NATIONAL AIR QUALITY STANDARDS WERE EXCEEDED - 1974 & 1978

	PARTICULATES		SULFUR OXIDES		CARBON MONOXIDE		OXIDANTS		NITROGEN OXIDES	
	ANNUAL Sec. Pri.	24-HOUR Sec. Pri.	ANNUAL	24-HOUR	1-HR	8-HR	1-HR	1-HR	ANNUAL	ANNUAL
CLARK-MOHAVE										
Number of Valid Stations	10*	(16) 10*	24**	24**	(0) 2*	(0) 2**	(0) 2**	(1) 2**	(1) 2**	(0) 0**
Number greater than standard	6	(7) 5	10	2	(0) 0	(0) 0	(0) 2	(1) 2	(1) 2	(0) 0
NEVADA										
INTRASTATE										
Number of Valid Stations	(ND) 0	(8) 0	(ND) 12	(ND) 12	(4) 0	(4) 5	(4) 5	(0) 0	(0) 0	0 0
Number greater than standard	(ND) X	(2) X	(ND) 5	(ND) 3	(0) 0	(1) 5	(0) 2	(0) 0	(0) 0	(0) 0

X - Stations with incomplete data to reflect annual status.
 * - Number of stations reporting a full year of valid data.
 ** - Number of stations reporting at least 3 24-hr values or 400 hourly values.
 () - Data in parenthesis is 1978 data.

1974 DATA SOURCE: Monitoring and Air Quality Trends Report, 1974, EPA-450/1-76-001, Feb 1976
 1978 DATA SOURCE: Nevada Air Quality Report - 1978, Nevada Division of Environmental Protection, Air Quality Section

TABLE 2-2

AMBIENT AIR QUALITY AT RURAL MONITORING STATIONS IN CLARK & NYE COUNTY - 1974 & 1978

POLLUTANT	NO. OF DAILY VALUES EXCEEDING 24 HR STAND. PRI.	HIGHEST 24 HR VALUES		ANNUAL VALUE
		1ST	2ND	
PARTICULATES				
Clark Co.	(ND) 0	(ND) 165	(ND) 152	(28) 40
Nye Co	(ND) 5	(ND) 377	(ND) 278	(8) 55

DATA IS IN ug/m³ (microgram per cubic meter)

These monitoring sites did not sample for sulfur oxides, carbon monoxide, oxidants, or nitrogen oxides.

(ND) Data not provided in Nevada Air Quality Report for 1978.

1974 DATA SOURCE: Monitoring and Air Quality Trends Report, 1974, EPA-450/1-76-001, Feb 1976.

1978 DATA SOURCE: Data in parenthesis is 1978 data obtained from Nevada Air Quality Report - 1978, Nevada Division of Environmental Protection, Air Quality Section.

TABLE 2-3

AIR QUALITY STANDARDS

AIR POLLUTANT	FEDERAL STANDARDS			NEVADA STATE STANDARDS		
	AVERAGING TIME	PRIMARY STANDARDS	SECONDARY STANDARDS	AVERAGING TIME	LIMITS	
Sulfur dioxide	AAM (a)	80 ug/m ³		AAM	80 ug/m ³	
	2 1/2 h*	365 ug/m ³		24 h	365 ug/m ³	
	3 h*		1300 ug/m ³	3 h	1300 ug/m ³	
Particulate matter	AGM (b)	75 ug/m ³	60 ug/m ³	AGM	75 ug/m ³	
	24 h*	260 ug/m ³	100 ug/m ³	24 h	150 ug/m ³	
Nitrogen dioxide (NO ₂)	AAM	100 ug/m ³	100 ug/m ³	AAM	100 ug/m ³	
	1 h	235 ug/m ³	160 ug/m ³	1 h	235 ug/m ³	
Carbon Monoxide (CO)	8 h*	10 mg/m ³	10 mg/m ³	8 h	10 mg/m ³	
	1 h*	40 mg/m ³	40 mg/m ³	1 h	40 mg/m ³	
Nonmethane Hydrocarbons	3 h*	160 ug/m ³	160 ug/m ³	3 h	160 ug/m ³	
	(6-9 AM)			(6-9 AM)		
Lead	QAM	1.5 ug/m ³	1.5 ug/m ³	QAM	1.5 ug/m ³	

(a) Annual Arithmetic mean

(b) Annual Geometric mean

h Hour

ug Microgram

mg Milligram

QAM Quarterly Arithmetic Mean

*Not to exceed once/year

**At altitudes greater than 5,000 feet the standard is 6.67 mg/m³

TOPOGRAPHY AND GEOLOGIC SETTING

The topographic features of the Nellis AF Range are typical of the basin and range physiographic province, with long, north-trending ranges separated by wide valleys or topographic basins. The characteristic features are shown in figure 2-2. The primary mountain ranges are the Desert, Pintwater, and Spotted Ranges on the South Range of the Nellis AF Range Complex. The North Range contains the Belted, Kawich, and Cactus Ranges (See figure 1-4).

Elevations range from approximately 3,100 feet on the desert floor around Indian Springs up to about 8,500 feet at Wheelborrow Peak in the Belted Range. "The slope of the terrain generally is 10% or less on the desert floor, increasing to between 11 and 20% on the foothills, then to 21 to 45% in most mountain ranges. Slopes greater than 45% are characteristic of the highest mountains [4]." The mountainous and mesa areas contain many gullies which carry the infrequent rain water to the playas on the desert floor.

Most of Southern Nevada, including the area now used as the Nellis AF Range, was submerged under a shallow sea for long periods of geologic time. The present mountains on the range are made up of vast thicknesses of sediments deposited from surrounding areas that were above the water. The period of deposition was followed by constricting and folding that brought severe pressure on Nevada from California and Utah. "Basin and range high-angle normal faults ranging in age from Miocene to Holocene are present throughout most of the study area and bound mountains and ranges. North-trending normal faults are most common, but northwest trends are prevalent [15]." The present makeup of the mountain terrain is a result of the wearing down of the folds by wind and water erosion.

The entire Range complex is underlaid by a wide variety of rocks ranging in age from Precambrian to Quaternary times. (See figure 2-3.) Precambrian basement rocks are exposed in the North Range of the study area. Gneissic quartz monzonite and biotite schist crop out in the Trappman Hills area of Nye County, east of Mount Helen. Precambrian crystalline rocks occupy only a small part of the study area. These rocks consist primarily of quartzites, sandstones, shales, limestones, and dolomites and are exposed in the Stonewall Mountain, Cockeyed Ridge, and the Sheep Range.

"All seven periods of the Paleozoic era are represented in the study area by a thick sequence of marine sedimentary rocks. Longwell reports that the Paleozoic rocks exposed in the Range north of Las Vegas Valley in Clark County have a maximum thickness in excess of 26,000 feet. Tschanz reports that the Cambrian Section of the Groom Range in western Lincoln County may well be the thickest Cambrian section in the Great Basin. Although the base

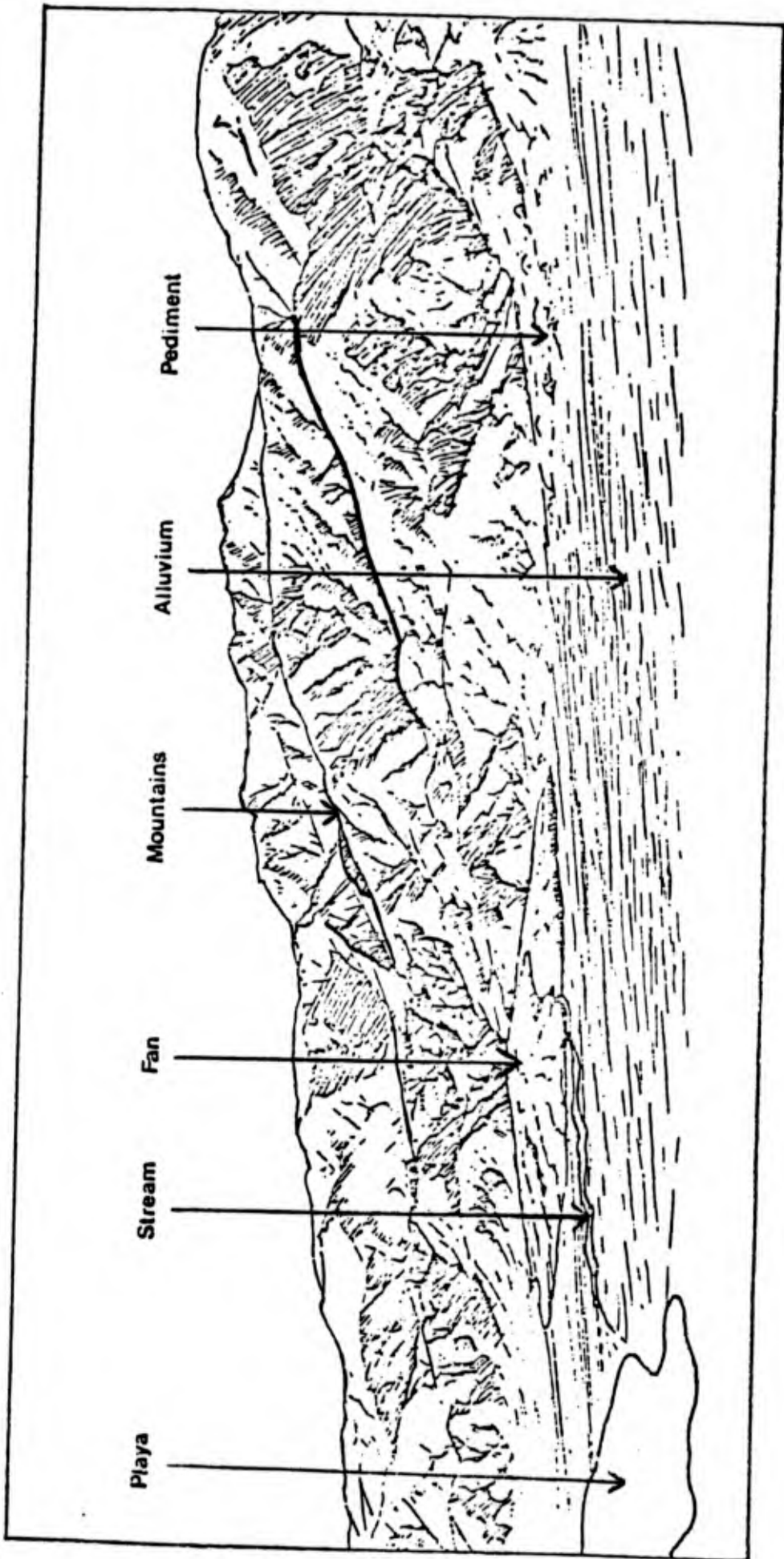


FIGURE 2-2 CHARACTERISTIC SURFICIAL FEATURES OF SOUTHERN NEVADA

or the section is not exposed, the measured portion exceeds 20,000 feet and the complete sequence may be several thousand feet thicker [15]."

Sedimentary Mesozoic rocks such as basal conglomerate, shale, fine-grained sandstone, limestone, dolomite, siltstones, and fine to medium sized quartz grains weakly cemented by calcium carbonate and iron oxides are found in the study area.

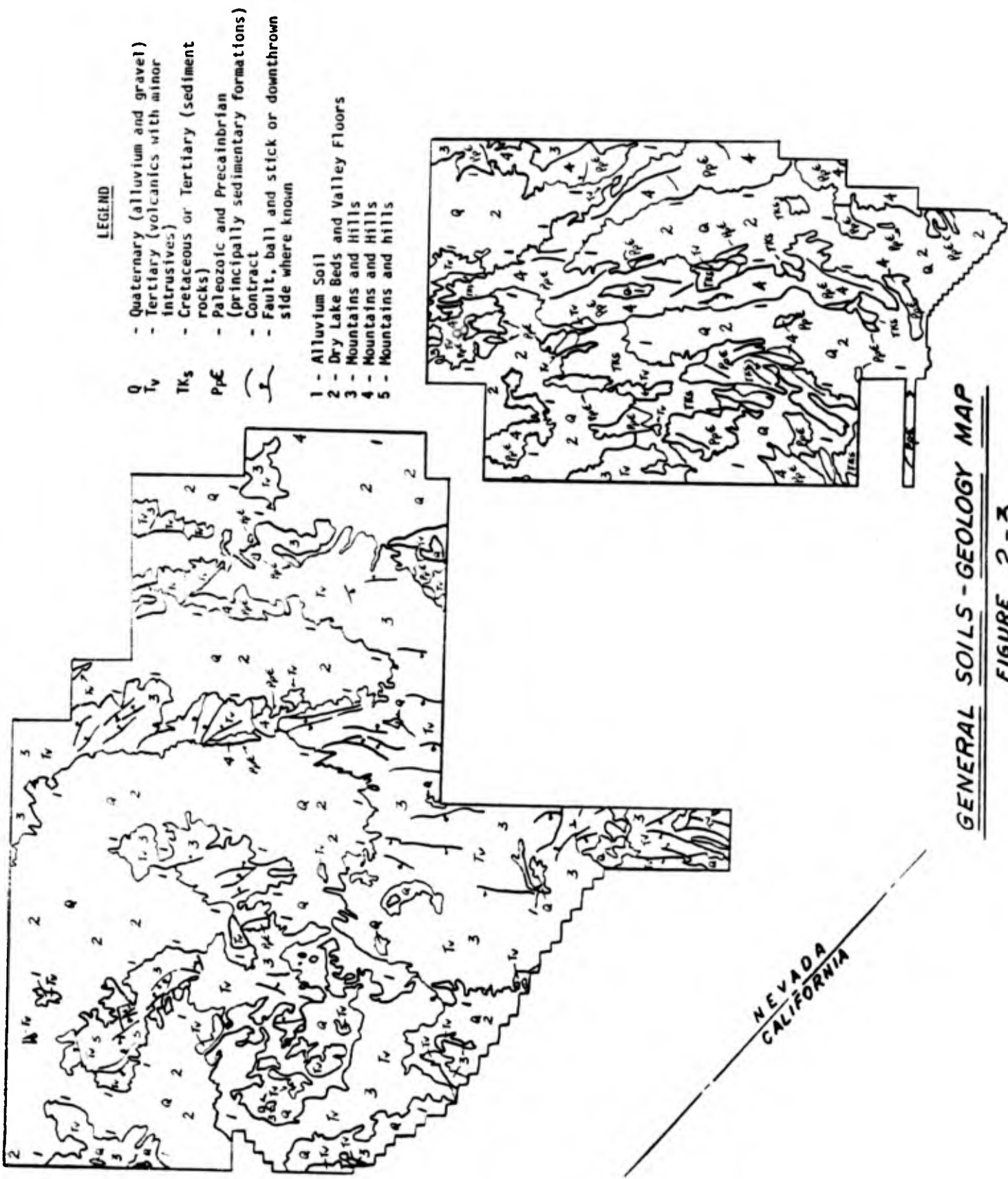
Mesozoic igneous rocks occur as granitic intrusives and volcanic rocks. The volcanic rocks consist chiefly of lava flows, mud flows, breccias, and tuffs.

Cenozoic deposits may be categorized into three general types: (1) Tertiary sedimentary rocks; (2) Tertiary volcanics and intrusives; and (3) quaternary alluvium. Three sedimentary rock units composed of yellowish siltstone overlain by whitish limestone, gypsum, terrestrial conglomerate and interbedded sandstone and tuff are exposed in the study areas. Tertiary volcanic and associated tuffaceous clastics are in the area. The composition of the volcanics is predominantly rhyolitic or dacitic, but andestitic and basaltic rocks also occur. Tertiary intrusive rocks occur principally as small granite or diorite stocks and basaltic dikes, sills, and plugs. A significant portion of the study area is covered by thick deposits of alluvium and colluvium material. The alluvium varies in composition, texture, and other physical properties with the type of parent material, carbonate, compaction, and distance from source.

SOIL AND WATERSHED

The soil medium physically supports the existing vegetation and is also the basic component of the watershed for the area. The soils are typical of arid regions and include materials for the alluvial immature consolidated upland classes. "Associations of Red Desert and alluvial are found in the lower elevations of the southern part of the state [12]."

The soil of the area can generally be classified into one of the five categories [13]. (See figure 2-3.)



Alluvial Soil Impediments: Shallow alluvial sediments usually less than 1,000 feet to bedrock. Areas denoted by 1's on figure 2-3 represent this soil category. This area may include some quaternary basalt flows. The area is located between the deeper bottom land soils and the foothills. It consists of coalescing alluvial fans. Slope usually ranges from 4 to 15 percent including steeper interfluvial sideslopes and areas joining foothills. The soils are usually shallow or moderately deep to hardpans. Texture in the root zone may range from coarse to fine. Gravel is usually present in quantity. Soil surface increases in stoniness upslope. In places, gravelly desert pavement occurs.

The soils of this area generally have many limitations for sanitation or community development facilities. They are generally unsuited for irrigated agriculture. They provide only a fair wildlife habitat.

Dry Lake Beds and Valley Floors: Deep alluvial sediments are generally more than 1,000 feet thick, this includes dry lakes and some minor inter-bedded tuffs and gravel. Areas designated by 2's on figure 2-3 represent this soil category. This area is generally below 4,500 feet elevation.

The lowest position of this type of material within a basin is occupied by a generally barren and dry lake bed. The margins of the lake generally have dunes of either sand or clayey material. Moderate to strongly saline soils generally surround this area. Except for dune side slope, this area is relatively flat. Nearly level flood plains of varying width may enter at its boundaries, slopes increase from four to eight percent; texture ranges from medium to moderately coarse; and, gravel content ranges from none to very gravelly conditions. This unit contains the deepest soils of the Range. In the peripheral area, the soils generally are moderately deep to duripan or gravel. The soils range up to five feet in depth at the lowest position.

The soils of this area are most subject to flooding, wind, and water erosion. Generally they have the fewest limitations for sanitation or development facilities. They provide the poorest wildlife habitat in the native state.

Mountains and Hills: This category is divided into three subgroups and are identified in figure 2-3 as types 3, 4, and 5 respectively.

Subgroup 1 (3 on figure 2-3) includes mountains and hills throughout the range but mostly in the northern and western parts. Although rock outcrops are common the general appearance is more rounded and less rugged than other mountains on the Range. This unit includes those areas dominated by woodland consisting mostly of Pinyon Pine and Juniper.

Soils of this area are generally moderately deep to hardpan or bedrock. Texture is usually moderately fine to moderately coarse and includes various amounts of gravel. The soils have a moderately low storage capacity for water. They are usually neutral or mildly alkaline in reaction. Clay of the shrinkswell type (caliche) must be taken into consideration for engineering purposes. The soils have an exceptionally high base exchange capacity which makes for fertile conditions. Slopes commonly range between fifteen and fifty percent.

Severe limitations for sanitation or development facilities are common to the areas. The soils generally provide fair to good wildlife habitat.

The mountains and hills of subgroup 2 (4 on figure 2-3) are generally steep and rugged. Limestone and dolomite are the principal rocks. Gypsum and quartzite are common in places. Woodland is the common vegetation consisting mostly of Pinyon Pine and Juniper with a few small patches of Bristlecone and Ponderosa Pine. This unit is most prevalent in the south-eastern part of the Range.

Excepting colluvial mountain slopes, the soils are generally shallow to hardpan or bedrock. They are usually moderately alkaline and have low water holding capacity. Slopes commonly exceed thirty percent, and rock outcrops are common.

This area has severe limitation for sanitation or development facilities due mostly to slope, depth, and rockiness. The soils generally provide fair to good wildlife habitat.

Subgroup 3 (5 on figure 2-3) is of relatively minor significance on the Range, consisting of two relatively small mountains in the northwest part of the Range. Shrub or woodland vegetation types occur on the area but the density is less than that on the other mountain forming areas.

The soils are commonly coarse textured and moderately deep to bedrock. The soils are somewhat droughty resulting from low water holding capacity. They are neutral to mildly alkaline in reaction and are commonly nonsaline. They are generally not fertile. The soils generally provide poor to fair wildlife habitat.

Although the erosion potential of soils on the Nellis AF Range has not been determined, a qualitative evaluation can be made from the slope angle and soil types. Normally finer textured soils are more susceptible to water erosion. Sandy soils and granulated clays are most easily eroded by wind; however, considering the slope angles on the Nellis AF Range, these generalizations possibly do not hold true in all cases.

"In general, if the slope angle is greater than 10 percent, the soil is considered highly erodible; between 2 and 10 percent, it's moderately erodible; and, less than two percent slopes are considered slightly erodible [14]."

Considering the various slope angles of the land, the area ranges from moderate to highly erodible. Topographic features of the area demonstrate water erosion characteristics by the many gulleys and channels leading from the mountain ranges to the playas on the desert floor.

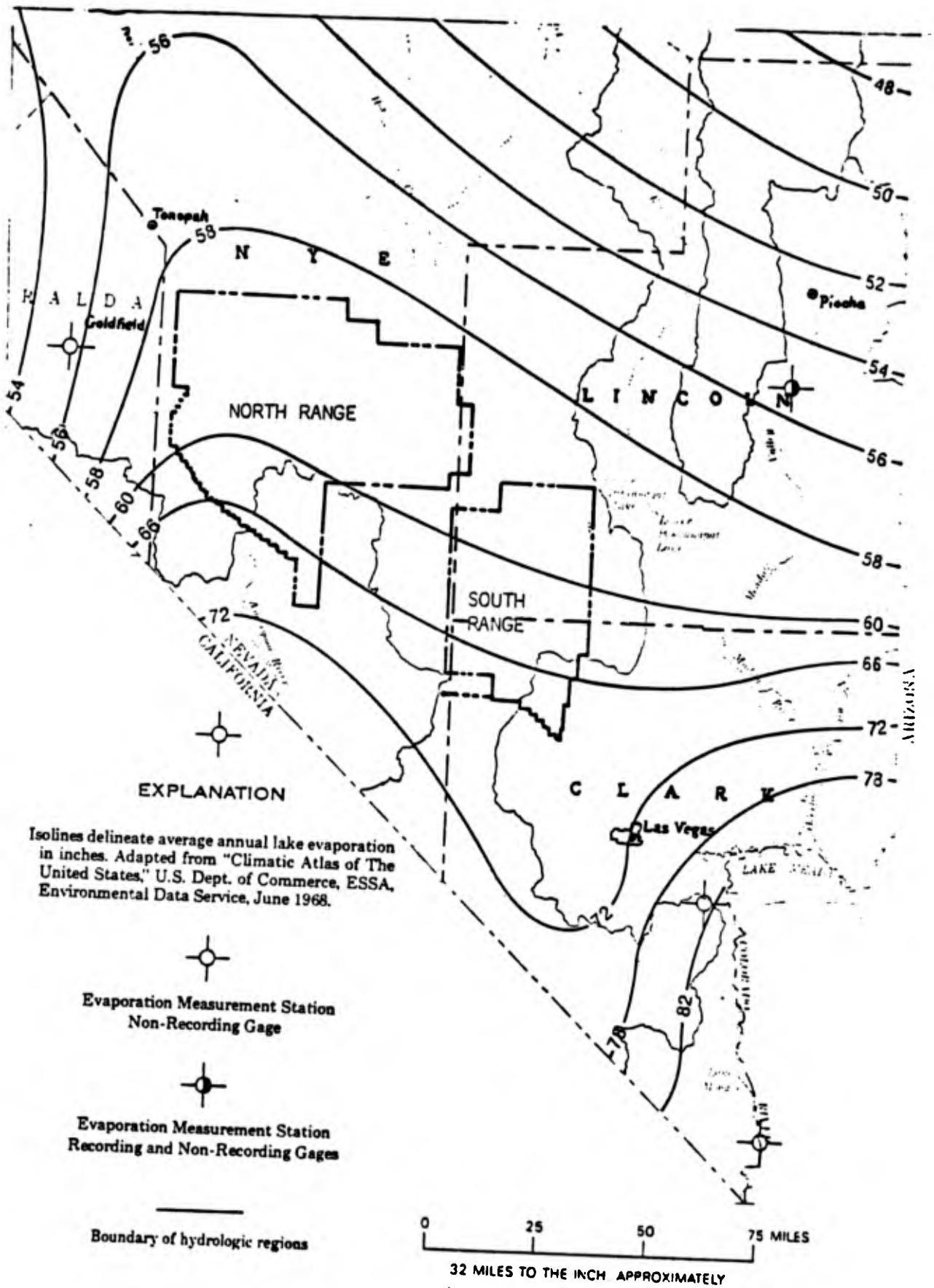
WATER RESOURCES

The precipitation pattern in Nevada is principally related to the topography. As shown in figure 2-1, stations at higher elevations generally receive more rainfall (including snow) than those at lower elevations. The greater precipitation in the mountainous area provides most of the recharge to the ground water system, while that which reaches the desert floor is mainly lost through evaporation. Figure 2-4 shows the annual evaporation rate from lakes in southern Nevada. The Nellis AF Range falls within the 58 to 72 inch annual evaporation rate. Run-off normally collects in many dry lake beds (playas) throughout the Range. Surface drainage from the South Range collects into the Three Finger Lake Valley and Indian Springs Valley playas. Similar playas in the Kawich, Gold Flat, Cactus Flat, and Stonewall Flat collect and dissipate the runoff from the North Range. Fortymile Canyon, originating on Pahute Mesa, drains into the normally dry Amargosa River with an ultimate destination of Death Valley.

There are various springs and natural, as well as man-made, water encatchments on the Range. Several have been developed by the BLM and FWS to provide water for wildlife.

While surface drainage patterns are quite evident on the Nellis AF Range, detailed subsurface drainage in many areas remains unknown. Figure 2-5 shows the estimated annual surface and groundwater flows between hydrologic areas around the Range. (This information has been extracted from the State of Nevada, Division of Water Resources Map prepared in 1971.).

In the TTR, "The Cactus Flat ground-water system (See hydrographic boundaries 145, 146 and 148 on figure 2-5) has been little studied and developed because of its isolation. It is probably part of the groundwater system discharging in Sarcabatus Flat northwest of Beatty along Highway 95, as are Stonewall Flat to the southwest of Cactus Flat and Lida Valley farther to the southwest. The number of wells available for study and the depth of the studies are not sufficient; however, to preclude entirely the possibility that Cactus Flat, like Gold Flat to its southeast, is part of the Pahute Mesa ground-water system in which case its ground water flows south to discharge eventually in the Amargosa Desert southeast of Beatty, Nevada [9]."



AVERAGE ANNUAL EVAPORATION

FIGURE 2-4

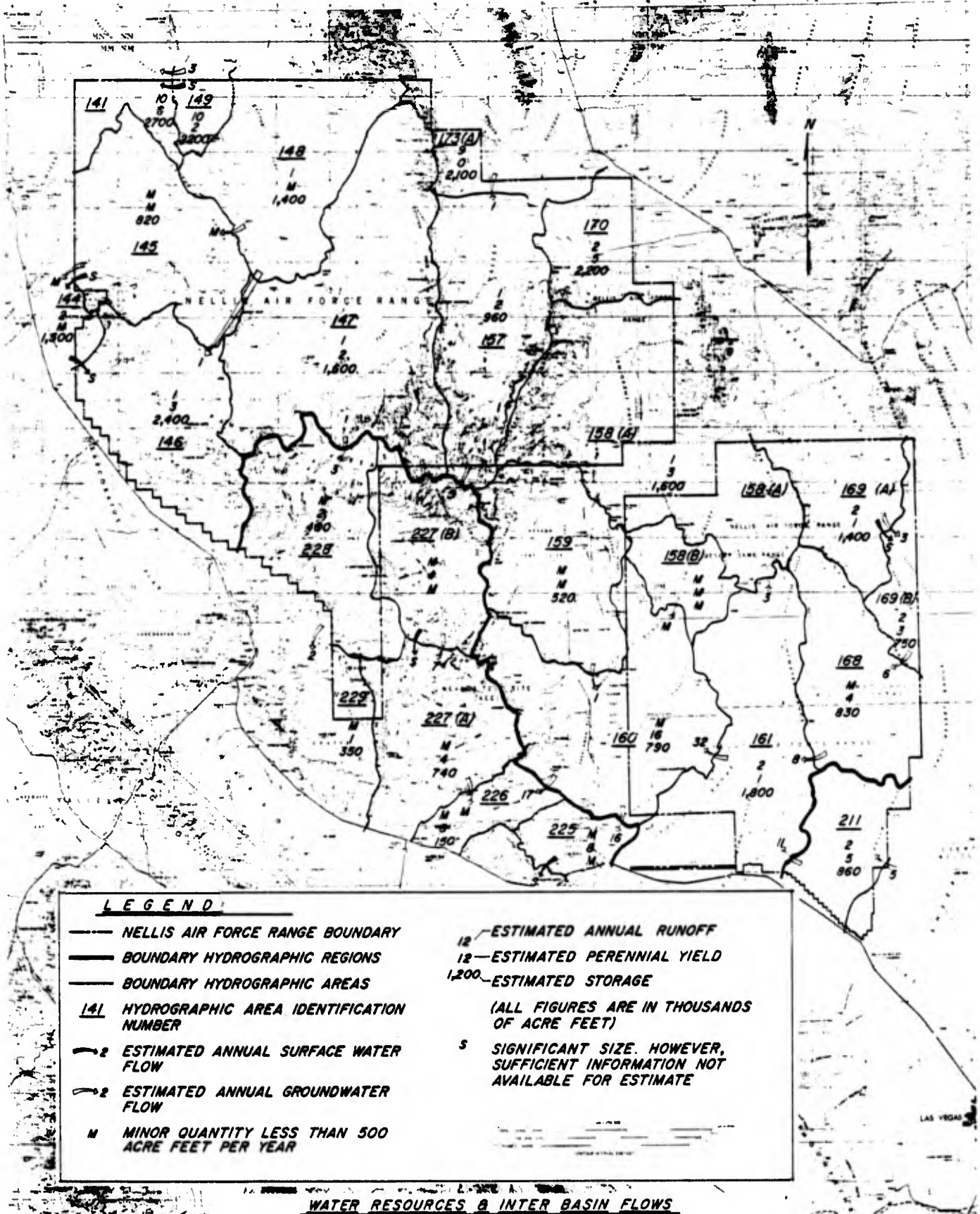


Figure 2-5

Groundwater drainage from the South Range and the southern portion of the North Range are a part of Ash Meadows and Pahute Mesa groundwater systems. The Pahute Mesa groundwater system, approximately 4,700 feet above mean sea level, in part moves southward beneath the Pahute Mesa, Fortymile Canyon, and Crater Flat toward the Amargosa Desert, and in part flows southwestward to Oasis Valley near Beatty. (See hydrographic boundaries 147, 157, 227, 228, and 229 on figure 2-5.) Groundwater in Oasis Valley moves southward into the Amargosa Desert through gravel sands of the ancestral Amargosa River channel and probably, also through the underlying fractured rocks. The Ash Meadows Groundwater system (See hydrographic boundaries 158, 159, 160, 161, 168, 211, and 213 on figure 2-5) generally moves downward through alluvium and volcanic rocks to the Paleozoic carbonate rocks, in which it then flows generally southwestward to discharge at the large springs in Ash Meadows.

Most of the annual discharge from the two groundwater systems, about 17,000 acre-feet from the Ash Meadows and 10,000 acre-feet from Pahute Mesa, is transpired by plants or evaporated from soils and playas in the Amargosa Desert. The Amargosa Desert Water system is used to support agricultural operations in that area of the desert. Flow in the system occurs mainly through fractures in the massive carbonate and volcanic rocks. Groundwater velocity beneath the Pahute Mesa area has been estimated between 7 to 250 feet per year with the most acceptable value being about 15 feet per year. These calculated estimates indicate that water from underground nuclear testing sites on Pahute Mesa could not leave government-controlled lands for more than 1,000 years [3].

"Many variables are involved in assessing ground water quality characteristics. For example, as ground water moves from areas of recharge to areas of discharge, the quality of the water may change in response to changing conditions in its environment. The dissolve solids content usually increases as water moves upward toward the surface [12]." These conditions could make ground water on the Nellis AF Range less desirable for agricultural use once it reached the hydrographic basin from which it would be pumped for irrigation of crop lands.

The quality of water available on the Nellis AF Range is generally good for domestic purposes. Table 2-4 shows typical monitoring data from wells at subrange 63 and Indian Springs AAF. Monitoring for radioactivity has been accomplished over several years by DOE. The potable water and supply wells show about 10 pCi/L of gross beta activity and 15 pCi/L of tritium. Other soluble decay products such as strontium-90 and Cesium-137 have not been detected. At this level of activity, one would not expect to exceed the EPA drinking water radioactivity standard for gross beta contamination.

TABLE 2-4
WATER QUALITY (mg/l)

<u>PARAMETER</u>	<u>SUBRANGE 63</u>	<u>INDIAN SPRINGS AAF</u>
CALCIUM	32	47
MAGNESIUM	21	31
SODIUM	5.4	8.1
POTASSIUM	1.0	2.0
BICARBONATE	205	264
CARBONATE	ND*	ND*
SULFATE	9.3	46
CHLORIDE	9.7	12
FLUORIDE	0.1	0.1
NITRATES (as N)	0.3	0.8
SILICA	12	18
IRON	0.16	ND*
DISSOLVED SOLIDS	212	330
HARDINESS	170	250
ALKALINITY	168	217
PH	8.0	7.8

mg/l - Milligrams per liter

Analysis accomplished on 7 May 1976

* Non-Detectable

SOURCE: USAF Hq TAC/DEMU, Water Quality Report, 1976

VEGETATION

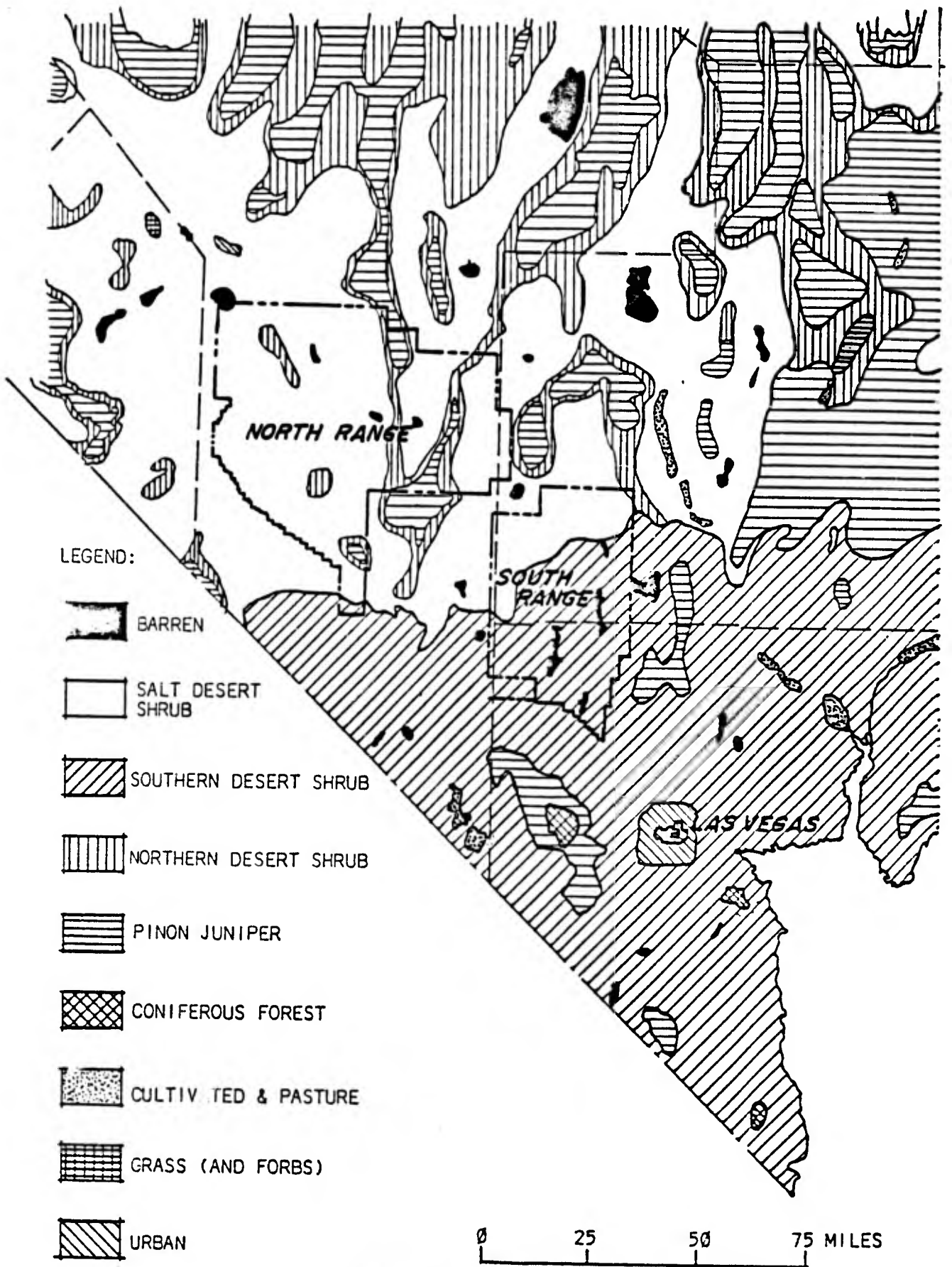
The predominant floral communities on the Nellis AF Range are shown in figure 2-6 and may be characterized into four groups:

- Southern Desert Shrub: These communities are found at the lower elevations, primarily below 4,000 feet, and are composed of Creosote Bush, Blackbush, Bursage, Boxthorn, Joshua Tree, Majave Yucca, Spanish Bayonet, Prickley Pear Cactus, Desert Needlegrass, and Big Galleta.
- Northern Desert Shrub: These communities are found at intermediate to high elevations throughout Nevada. In nearly each case a member of the genus *Artemisia* is dominant. The important plant species in this group include: Big Sagebrush, Rubber Rabbitbrush, Green Rabbitbrush, Bluebunch Wheatgrass, Squirrel Tail, and Nevada Bluegrass.
- Salt Desert Shrub: These plant communities are found primarily in valley bottoms and include White Sage, Shadscale, Four-winged Saltbrush, Bailey's Greasewood, Spiny Hopsage, Russian Thistle, Black Sagebrush, and Bud Sage.
- Pinyon Juniper: This community is normally found above the northern desert shrub in a belt around many of the mountain ranges on the North and South portions of the Nellis AF Range. The two important plant species are Pinyon Pine and Utah Juniper.










Vegetation other than the plants belonging to the major communities also exists on the Nellis AF Range, but to a much lesser degree. For example, there is some mountain brush, forest, grasslands, and hydrophilous vegetation.

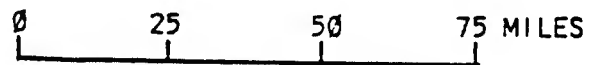
The desert riparian community occurs along washes throughout the creosote bush community and the middle elevations of the black-brush community. The vegetation is similar to surrounding communities but denser and more luxuriant.

Table 2-5 lists the proposed endangered, threatened and plant species of concern, on and adjacent to the Nellis AF Range. It is pointed out that none of the species shown in Table 2-5 were included in the Federal List of Endangered or Threatened Species published in the May 20, 1980 Federal Register. The proposed list is provided here because during the period of the proposed withdrawal it is possible some or all of the plants may be placed on the official list. Figure 2-7 shows the geographical location of the species. In the area, as is common to the desert in general, vegetation productivity is highly variable from year to year. This variability, which depends on precipitation and a complex of other environmental factors constitutes a major difficulty in assessing the status of species populations. Rarity in any one particular year could not be considered evidence of a dwindling plant species population [1].



LEGEND:

-  BARREN
-  SALT DESERT SHRUB
-  SOUTHERN DESERT SHRUB
-  NORTHERN DESERT SHRUB
-  PINON JUNIPER
-  CONIFEROUS FOREST
-  CULTIVATED & PASTURE
-  GRASS (AND FORBS)
-  URBAN



VEGETAL COVER MAP
FIGURE 2-6

TABLE 2-5

PROPOSED ENDANGERED OR THREATENED AND NEVADA PLANT
SPECIES OF CONCERN ON OR ADJACENT TO THE NELLIS AF RANGE

<u>SPECIES</u>	<u>STATUS</u>	<u>FIGURE 2-7 NUMBER KEY</u>
<u>Astragalus beatleyae*</u>	E	2
<u>Lathyrus hitchcockianus*</u>	E	7
<u>Asclepias eastwoodiana</u>	T	11
<u>Astragalus funereus</u>	T	14
<u>Astragalus pseudiaanthus</u>	T	28
<u>Coryphantha vivipara var. rosea</u>	T	15
<u>Frasera pahutensis</u>	T	5
<u>Galium hilendiae ssp. kingstonense</u>	T	6
<u>Penstemon arenarius</u>	T	23
<u>Penstemon pudicus</u>	T	24
<u>Phacelia beatleyae</u>	T	9
<u>Townsendia jonesii var. tumulosa</u>	T	37
<u>Agave utahensis var. eborispina</u>	C	12
<u>Arabis shockleyi</u>	C	13
<u>Arctomecon merriamii</u>	C	1
<u>Astragalus musimonum</u>	C	30
<u>Astragalus nyensis*</u>	C	3
<u>Camissona megalantha</u>	C	4
<u>Erigeron ovinus</u>	C	31
<u>Erigeron uncialis var. conjugans</u>	C	32
<u>Eriogonum concinnum</u>	C	16
<u>Gilia nyensis</u>	C	17
<u>Gilia ripleyi</u>	C	18
<u>Haplopappus brickellioides</u>	C	19
<u>Hulsea vestita ssp. inyoensis</u>	C	20
<u>Lesquerella hitchcockii</u>	C	33
<u>Linanthus arenicola</u>	C	21
<u>Lupinus holmgrenanus</u>	C	22
<u>Lupinus montigenus</u>	C	34
<u>Machaeranthera grindelioides var. depressa</u>	C	35
<u>Mirabilis pudica</u>	C	29
<u>Penstemon Pahutensis</u>	C	8
<u>Penstemon thompsoniae ssp. jaegeri</u>	C	36
<u>Perityle megalcephala var. intricata</u>	C	25
<u>Peteria thompsonae</u>	C	26
<u>Phacelia mustelina</u>	C	27
<u>Trifolium andersonii ssp. beatleyae</u>	C	10

T - Threatened

E - Endangered

C - Species of concern (plants which are of relatively restricted geographic occurrence but are not currently threatened to a great degree by any activity.)

SOURCE: USFWS, Draft Federal Register Notice of Review, Sacramento Endangered Species Office, March 21, 1980

*Nevada Department of Conservation and Natural Resources, Division of Forestry, Critically Endangered Species List (protected under authority granted in NRS 527.270). Data provided by Nevada Div. of Forestry's 12 March 1980 Letter to Mr. Alton Chavis, Langley AFB VA.

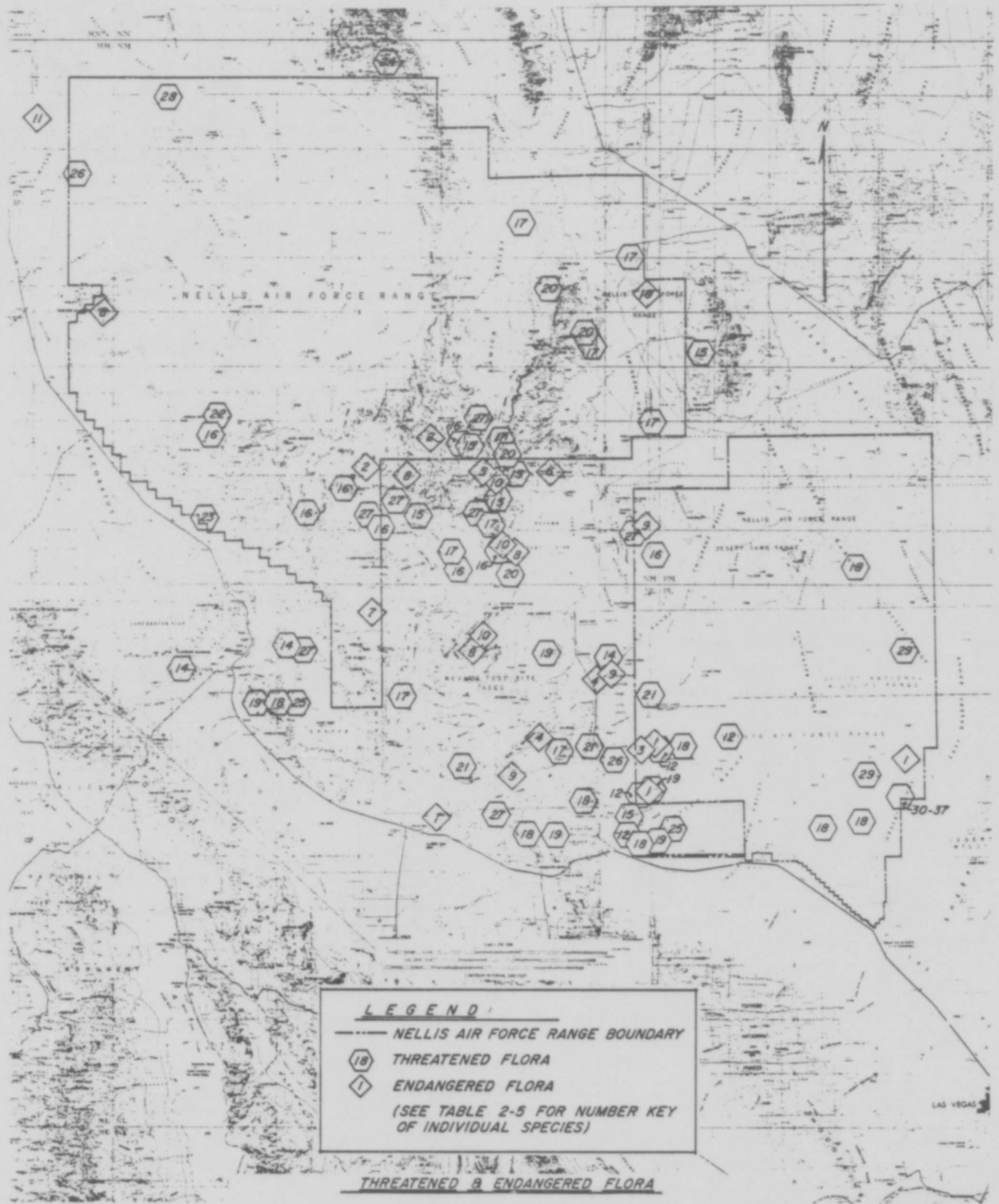


Figure 2-7
2-21

ANIMALS

Table 2-6 lists the predominate species found on and adjacent to the Nellis AF Range. The species niche is described by the general flora communities. Comparison of table 2-6 with figure 2-6 will provide a general view of the species habitat. It must be remembered that the habitat for many species found on the Range is in localized zones of the various vegetative communities.

Coyotes, bobcats, foxes, badgers, and an occasional mountain lion are among the larger mammalian carnivores. Small mammals such as antelope ground squirrels, kangaroo rats, mice, cottontails, and jack-rabbits are widely distributed but not abundant. Over 250 species of birds have been identified on the refuge, and of these, nearly 50 are permanent residents. Examples are Gambel's quail, roadrunner, pinyon jay, Clark's nutcracker, pine siskin, cactus wren, and burrowing and horned owls. A number of small water impoundments of the refuge attract, stop, and temporarily hold a variety of migrating waterfowl and wading birds, among them Canada geese, mallards, teal, redheads, gadwells, pintails, herons, egrets, and ibises. Several species of hawks are represented, with the Cooper's and sharp-shinned hawks being the most numerous in the timbered regions and the red-tailed hawk more common in the open country. Distribution of large animals and their range is approximately as shown of Figure 2-8. The Desert Bighorn Sheep habitat encompasses six mountains with the DNWR. Within the proposed withdrawal area two mountain ranges, the Pintwater and the Desert Ranges have year-round sheep use. The following population estimates were gathered during the 1978 fall helicopter survey. The Pintwaters have an estimated population of 205 animals and the Desert Range carries 126 animals. The Bighorn are nomadic in movement and migrate with the seasons; however, it is the need for water in this arid climate which restricts their movement during the summer months. Normally the Bighorns are found at the higher elevations but foraging for food carries them throughout the ranges.

The November 1977 animal inventory on the North Range showed 4 burros, 1,378 horses, 59 antelope, 825 cattle, and 4 deer. The higher elevations of the Kawich Mountain Range most likely receive heavier horse use during the summer months, while the lower vallies receive heavier use during the winter. The primary factor that accounts for this use pattern is availability of forage. Feces studies conducted on wild horses, cattle, and mule deer show the horses diet more closely parallels that of cattle than mule deer, therefore there is little competition for forage on the Wild Horse Range provided trespass grazing is restricted. Availability of water is limited, but over the years has been judged to be adequate to support the existing horse and burro population. Futher population growth could reduce available water and forage.

TABLE 2-6

WILDLIFE ON THE NELLIS AF RANGE

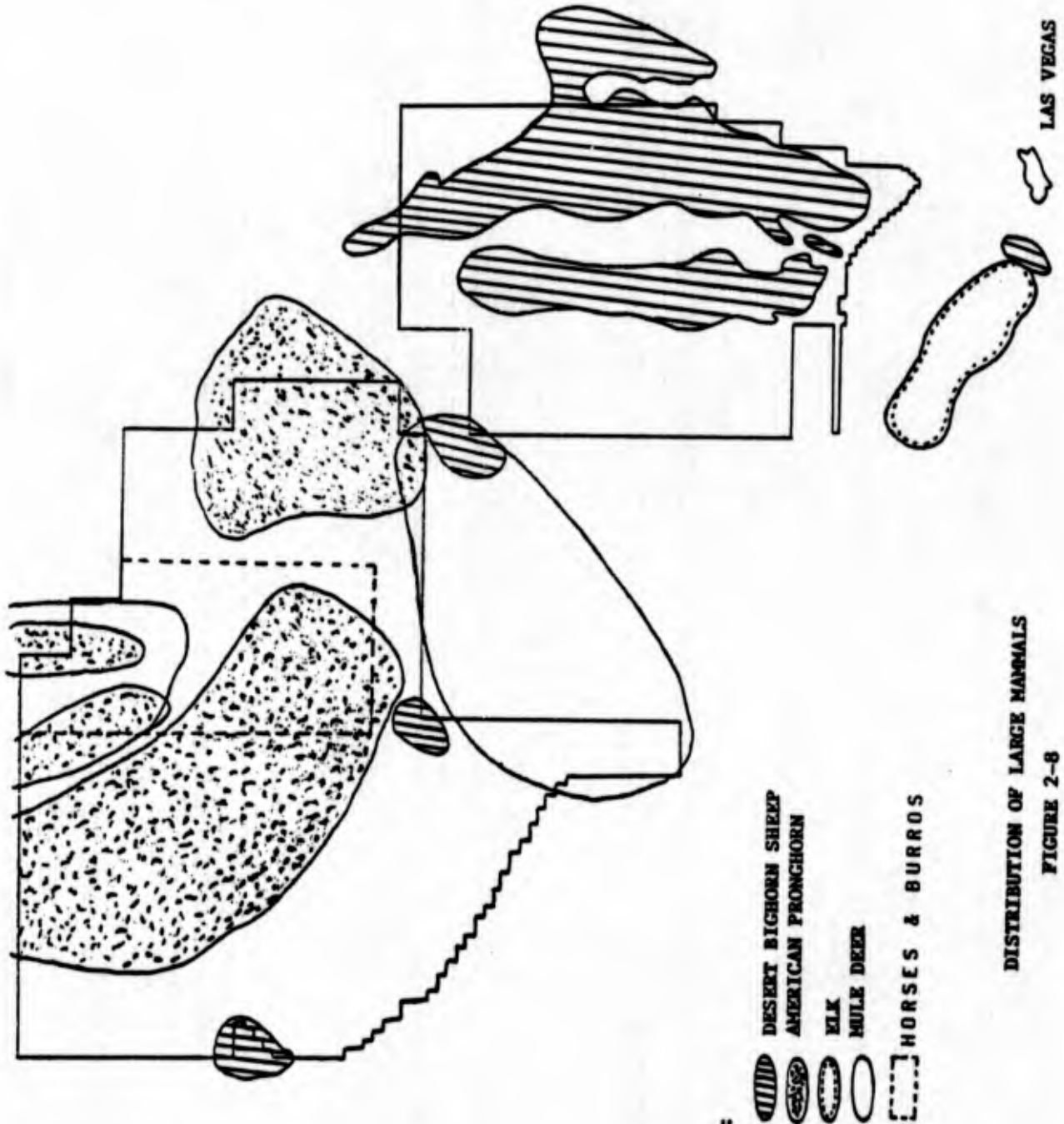
<u>PREDOMINANT SPECIES</u>	<u>Vegetative Communities</u>				
	<u>SALT DESERT SHRUB</u>	<u>SOUTHERN DESERT SHRUB</u>	<u>NORTHERN DESERT SHRUB</u>	<u>PINYON- JUNIPER</u>	<u>RIPARIAN</u>
<u>Reptiles</u>					
<u>Snakes</u>					
<u>Chionactis occipitalis</u> (Western Shovel-nose Snake)		X	X		X
<u>Masticophis flagellum piceus</u> (Whipsnake-Red Racer)		X			X
<u>Crotalus cerastes cerastes</u> (Desert Sidewinder)		X			X
<u>Lizards</u>					
<u>Callisaurus draconoides</u> (Zebra-tailed Lizard)	X	X	X		X
<u>Phrynosoma platyrhinos</u> (Desert Horned Lizard)	X	X	X		X
<u>Sceloporus occidentalis</u> (Western fence lizard)	X	X		X	X
<u>Uta stansburiana</u> (Side-blotched Lizard)	X	X	X	X	X
<u>Cnemidophorus tigris</u> (Whip-tailed Lizard)	X	X		X	X
<u>Turtle</u>					
<u>Gopherus agassizi</u> (Desert Tortoise)		X			X

TABLE 2-6 (Con'd)

<u>PREDOMINANT SPECIES</u>	<u>SALT DESERT SHRUB</u>	<u>SOUTHERN DESERT SHRUB</u>	<u>NORTHERN DESERT SHRUB</u>	<u>PINYON JUNIPER</u>	<u>RIPARIAN</u>
<u>Birds</u>					
<u>Lophortyx gambelii</u> (Gambel's Quail)			X		
<u>Alectoris graeca</u> (Chukar)			X	X	X
<u>Amphispiza nevadensis</u> (Sage Sparrow)	X	X	X		X
<u>Amphispiza bilineata</u> (Black-Throated Sparrow)	X	X	X	X	X
<u>Carduelis mexicanus</u> (House Finch)	X	X	X	X	X
<u>Erimophila alpestris</u> (Horned Lark)	X	X	X	X	X
<u>Gymnorhinus cyanocephalus</u> (Pinyon Jay)	X	X	X	X	X
<u>Zenaidura macroura</u> (Morning Dove)	X	X	X	X	X
<u>Mammals</u>					
<u>Rodents</u>					
<u>Microdipodops megacephalus</u> (Dark Kangaroo Mouse)	X	X	X	X	X
<u>Microdipodops pallidus</u> (Pale Kangaroo Mouse)	X	X	X	X	X

TABLE 2-6 (Cont 'd)

	<u>SALT DESERT SHRUB</u>	<u>SOUTHERN DESERT SHRUB</u>	<u>NORTHERN DESERT SHRUB</u>	<u>PINYON- JUNIPER</u>	<u>RIPARIAN</u>
<u>Thomomys bottae</u> (Valley Pocket Gopher)	X	X	X	X	X
<u>Microtus longicaudus lathus</u> (Long-tailed Meadow Mouse)	X	X	X	X	X
<u>Eutamias minimus</u> (Least Chipmunk)		X		X	
<u>Rabbits</u>					
<u>Lepus californicus</u> (Jackrabbit)	X	X	X	X	X
<u>Sylvilagus audubonii</u> (Cottontail)				X	
<u>Carnivores</u>					
<u>Canis latrans</u> (Coyote)	X	X	X		X
<u>Vulpes macrotis</u> (Kit Fox)	X	X	X		X
<u>Lynx rufus</u> (Bobcat)	X	X	X	X	X
<u>Large Mammals</u>					
<u>Odocoileus hemionus</u> (Mule Deer)	X		X	X	X
<u>Antilocarpa americana</u> (American Pronghorn)	X		X	X	X
<u>Ovis canadensis</u> (Desert Bighorn Sheep)	X	X		X	X
<u>Equus caballus</u> (Horses)	X		X	X	X
<u>Equus asinus</u> (Burros)	X		X	X	X



LEGEND:

- DESSERT BIGHORN SHEEP
- AMERICAN PRONGHORN
- ELK
- MULE DEER
- HORSES & BURROS

DISTRIBUTION OF LARGE MAMMALS
FIGURE 2-8

No Federally listed endangered or threatened wildlife species have been documented on the Nellis AF Range; however, the peregrine falcon and bald eagle may migrate through the Range. The desert tortoise, gila monster, and spotted bat are protected by the wildlife laws of Nevada and could occur on the Range.

ANTIQUITIES

The natural and cultural development of southern Nevada can be traced through fossils found in the area, the remains of ancient cultures, and the more recent history of contemporary man.

PALEONTOLOGICAL RESOURCES

Paleontological records show the existence of animal and plant life in the area for nearly 600 million years. There are four general ages of sedimentary rocks in the area, representing the record from 600 million years ago to approximately the last one million years of geologic history.

Lower Paleozoic rocks (450-600 million years old) are well exposed in the Belted Range in the northern part of Nellis. A significant locality for fossils is in a canyon west of Belted Peak. Others have been found on the eastern part of the NTS. There also is an important occurrence of fossils in the hills northwest of Mercury.

Rocks classified as Middle Paleozonic (350-400 million years old) are not widely distributed in the area. Important areas are the south end of the NTS and the hills between there and U.S. Highway 95.

Upper Paleozoic rocks (225-300 million years old) are common outcrops on the NTS. They comprise the bulk of the Elena Range.

There are several thousand feet of outcrops with sporadic occurrences of fossils. The Tippihah Formation is somewhat younger. These rocks occur in small outcrops in the hills on the southwest side of the Cactus Range on the Tonopah Test Range.

Pleistocene Beds, representing the last million years, outcrop along washes and alluvial fans. No fossil material is present in the sediments, although the older gravels and sands offer some possibilities, as they represent old terraces and stream channels where animals probably were common. Distribution within the area consists of a few square miles of alluvial fan exposures on the southwest side of the Cactus Range on the Tonopah Test Range.

CULTURAL RESOURCES

Existing cultural resource data on archaeological and historical properties are limited, and are primarily derived from a literature search compiled by the Archaeological Research Center, University of Nevada - Las Vegas, the Museum of Natural History, for the Department of the Navy's Seafarer ELF Communications System Environmental Statement. (For further information, see reference 3). The literature search included only the Nellis Air Force North Range and NTS. At present, no data has been developed for the Nellis South Range.

Cultural sites located on the Nellis North Range consist of fourteen (14) aboriginal sites, six (6) historic sites, and four (4) sites which contain historical material in association with aboriginal sites.

Historic sites and materials are generally associated with late nineteenth and early twentieth century mining and ranching. These include historic mining townsites, homesites, mining sites, dugout structures, and historic scatters.

Aboriginal features include lithic scatters and concentrations, quarry workshops, caves and rockshelters, a campsite, burial site, pinyon nut roasting site, rock outline features, and pottery.

There have been previous impacts to the cultural resources on the North Range, primarily related to construction of roads and targets, the bombing and strafing of historic mining camps during the early years of range use, and the development of springs for livestock. There are no indications as to the exact time period when these sites were damaged; however, the Air Force is aware of the situation and is currently in the process of defining the scope of the problem to prevent additional impacts to these resources.

The Air Force is under contract with the University of Nevada for North and South Ranges. Along with an exhaustive literature search, field reconnaissance is being conducted for historic, archaeological, and significant vegetative resources. This effort will provide data on sensitive areas and the basis for future surveys when construction and/or operational activities are scheduled for a sensitive area.

Individual contracts are being utilized to provide cultural site clearance for the projects listed in this document as well as for those presently under construction. When a site survey indicates a sensitive area, the Air Force will move the project to an approved non-sensitive site. Commitment to this policy has been implemented by the TAC and all programming documents for construction activity on the Nellis AF Range are reviewed for compliance with this policy.

VISUAL RESOURCES

Public use of the visual resources on the Nellis AF Range is generally restricted to the portions of the range immediately adjacent to the highways (95 on the south and west and 7 on the east and 25 on the northeast).

Public entry to the Nellis Range and the NTS is restricted.

Of the approximately 472 miles of perimeter on the Nellis Range, only about 75 miles of the perimeter are within the foreground-middle-ground zone (up to 3-5 miles), while the remainder of the perimeter of the Range is in the background zone (5-15 miles) or cannot be seen at all due to higher intermediate land masses. The foreground-middle-ground zones include the southwest portion of the North Range adjacent to Highway 95, northeast portion of the North Range near Highway 25, and the southern portion of the South Range adjacent to Highway 95.

Present target distribution in the North Range cannot be seen from either Highway 95 or 25 because of intervening higher terrain. (See figure 1-2). Past impacts to the landscape within the foreground-middle-ground zones on the North Range are those resulting from mining activity and roads.

The foreground-middle-ground zone on the southern portion of the South Range has been impacted in the vicinity of the targets in subranges 63 and 65 and in the area of the Indian Springs AAF. (See figure 1-2.) The present impacted areas in subranges 63 and 65 consist of surface disturbance and targets (See table 1-2A for a description of facilities) on the valley floor and playas and are not readily visible to the casual viewer passing by on Highway 95.

LAND USE

RECREATION

The specialized use of an area of interest as the Nellis Air Force Range does not permit opportunities for public recreation at large. The entire Nellis AF Range is restricted from public use due to safety factors and national security. Limited access

has been given to education groups for field trips and studies where participant safety is assured.

"In the three counties (Clark, Lincoln, and Nye) in which the Nellis AF Range is located, there are 12,661,466 acres of public recreation land. This acreage is composed of 12,566,809 acres of Federal, 93,576 acres of state, 25 acres of county, and 1,056 acres of local land [8]." Recreation facilities within 200 miles of the Range include Red Rock Canyon Recreation Area; the Toiyabe, Humboldt, and Inyo National Forests; Death Valley National Monument; Lake Mead National Recreational Area; Desert National and Pharanagat National Wildlife Ranges; and a host of states parks including Cathedral Gorge, Echo Canyon, Eagle Valley, Beaver Dam, Valley of Fire and Overton Wildlife Management Area.

The Desert National Wildlife Range's Corn Creek Field Station provides opportunities for sightseeing, animal photography, horse back riding, and nature trails. In concert with wilderness management, future activities will be directed toward public enjoyment of the more remote portions of the area. Annually the FWS (and the Nevada Fish and Game Department) holds two trophy ram/desert bighorn sheep hunts on DNWR. The second of these hunts is held within the proposed withdrawal area on the Pintwater and Desert Mountain Ranges. This requires a curtailment of Air Force activities during the hunt. The FWS and the Nevada Fish and Game Department consider these annual hunts to be a vital part of managing the State Bighorn Sheep populations and the most biologically sound system of harvest on any big game species in the world.

LIVESTOCK GRAZING

During 1956 the Air Force paid \$708,000 to revoke grazing and mining rights on the Nellis AF Range. Management agreements between the Air Force, BLM, and FWS have been designed to protect wildlife, horses, and burros on the Range, recognizing that the sparse vegetation and animal competition coupled with the types of DOD operations are not compatible with domestic grazing.

On November 21 and 22, 1977, the Las Vegas District Office of BLM conducted an animal inventory on the North Range. The inventory showed 825 cattle (trespass).

BLM reported to the Air Force that trespass domestic livestock were removed from the Range in 1978.

BLM has installed approximately 150 miles of fence along the northern border of the North Range to reduce the problem of trespass grazing. Competition among the large animals (mule deer, antelope, horses, and burros) which inhabit the range could present untenable management problems for protecting wildlife.

AGRICULTURE

There are no farming operations on the Nellis AF Range. Due to the soil structure and sparsity of rainfall, the Range possibly would not yield a very productive crop if it were open for agricultural use unless some irrigation was done. Potential agricultural sites on the Range have been identified by BLM and are located at Cactus Flats, Kawich Valley, Emigrant Valley, and the lower lake of Three Finger Lake on the South Range (Range 63) [12].

Irrigation in the area of the North Range would require water to be pumped from the Ash Meadows and Pahute Mesa groundwater systems. These two systems discharge annually about 17,000 acre-feet and 10,000 acre-feet respectively. The discharge presently is transpired by plants or evaporated from soils and playas in the Amargosa Desert. Heavy pumping of the groundwater systems could alter the characteristics of the desert area.

MINERAL RESOURCES

A Stage One Minerals Inventory has been conducted by the U.S. Geological Survey and Bureau of Mines for the Nellis AF Range and immediate area [15]. The following summarizes this report.

Mining activity in the study area, Nellis AF Range and adjacent lands, began in the mid-1860's; with most of the gold-silver deposits being located during the early 1900's. Although interest in the area's mineral deposits waned shortly after their discovery, activity at some sites continued sporadically through the 1920's and 30's. Total mineral production in the area is not known, but, over half the properties listed in table 2-7 are reported to have had some output. Figures 2-9 shows the geographical location of the mining districts in the study area.

Little or no mineral exploration or related activity has occurred in the withdrawn area for nearly a half century because the Range has been withdrawn from operation of the mining laws. Nonetheless, geologic evidence and records of past mining activity support a premise that portions of the area could be a future source of selected mineral commodities to meet national requirements.

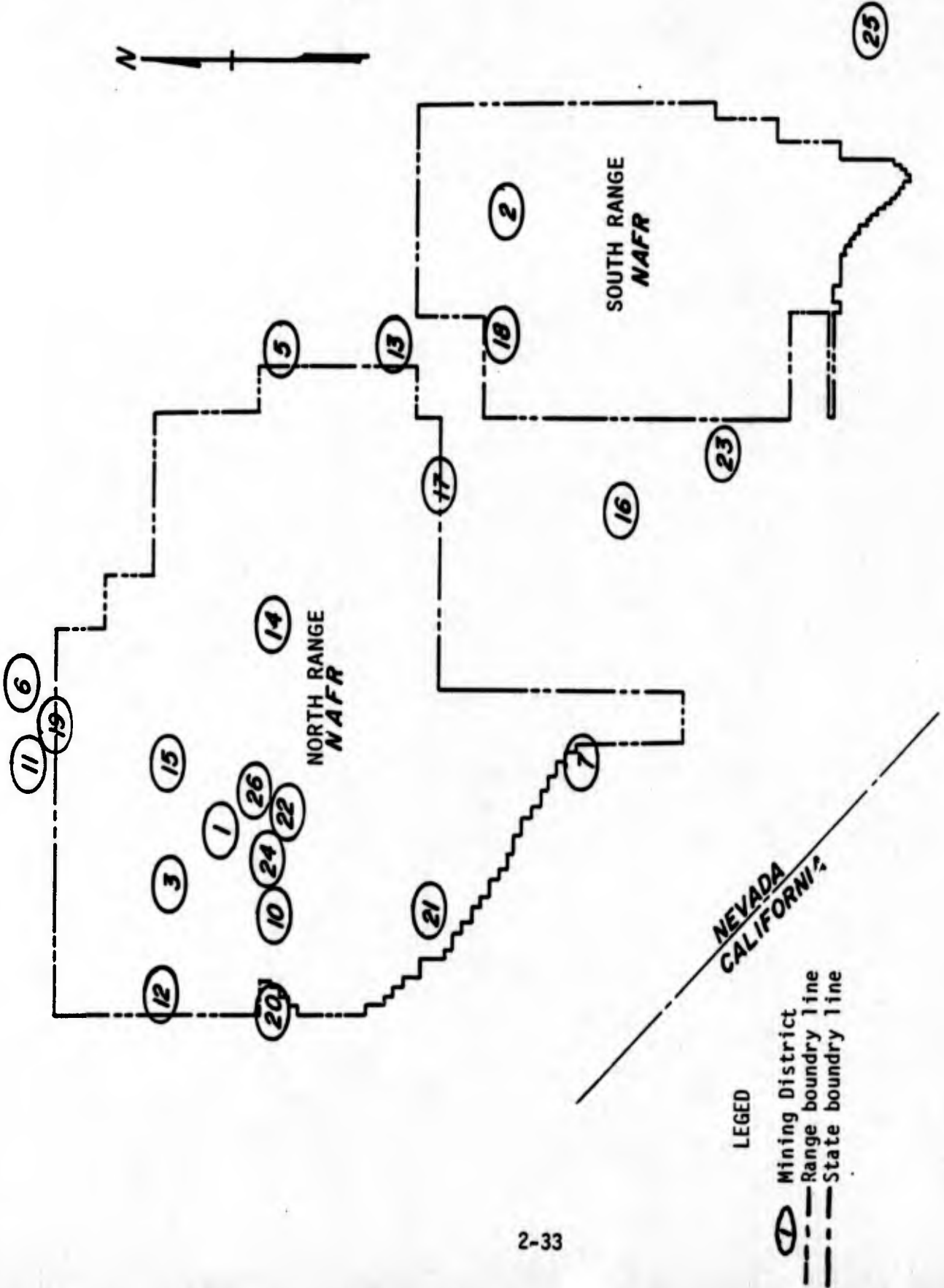
Mineral commodities found in the Nellis AF Range area are gold, silver, copper, lead, zinc, mercury, tungsten, turquoise, sand, gravel, and limestone. Some of the area within the Nellis AF Range is prospectively valuable for sodium, potassium, alunite, and potash. Approximately the eastern half of the state of Nevada is prospectively valuable for oil and gas. Much of the North Range and a small portion of the South Range falls within this

TABLE 2-7

MINES ON AND ADJACENT TO NELLIS AF RANGE

<u>MINING DISTRICT</u>	<u>COMMODITY</u>	<u>NO. OF MINES</u>
1. Antelope Springs	Gold & Silver	3
2. Arrowhead	Copper, Lead, & Silver	1
3. Cactus Springs	Gold, Silver, Turquoise	3
4. Dike	Limestone & Lead	2
5. Dan Dale	Mercury, Lead, Silver, Copper, & Zinc	3
6. Eden	Silver, Gold	4
7. Fluorine	Fluorspar, Gold	2
8. Frenchman Mountain	Gypsum	7
9. Gass Peak	Zinc, Silver, Lead, Gold, Building Stone	3
10. Gold Crater	Lead, Gold, Silver	1
11. Golden Arrow	Silver, Gold	3
12. Goldfield	Gold	1
13. Groom	Lead, Zinc, Silver, Gold, Copper, Limestone	5
14. Kawich	Mercury, Gold, Manganese	6
15. Mellan Mountain	Gold	1
16. Mine Mountain	Lead, Mercury, Silver	1
17. Oak Springs	Tungsten, Gold, Silver, Lead, Magnesite	9
18. Papoose	Silver, Gold, Lead	1
19. Silverbow	Silver, Gold	4
20. Stonewall	Silver	1
21. Tolicha	Gold, Silver	5
22. Trappmans	Gold, Silver	1
23. Wahmonie	Gold, Silver, Copper, Travertine	4
24. Wellington	Gold, Silver, Copper	4
25. White Caps	Lead	1
26. Wilson	Silver, Gold	2

SOURCE: Reference 15.



2-33

MINING DISTRICTS
FIGURE 2-9

zone. Gypsum and limestone are probably the most valuable commodities produced in the vicinity of, but not in, the Nellis AF Range. The average annual gypsum and limestone output for the early 1960's was estimated at 1,000,000 and 500,000 tons, respectively. Significant amounts of lead, silver, copper, and zinc have been recovered from the Groom mine about 3 miles east of the Range. (See Mining District No. 13 on figure 2-9.)

Within the study area most of the metalliferous mineral deposits consist of gold-silver minerals, occurring as fissure fillings and replacements in shear zones. Some deposits also contain lead, zinc, and copper. Several occurrences of tungsten and molybdenite have been found in one district.

Areas having the highest geologic potential for mineral resources include the north end of the North Range, east of Goldfield, which may contain significant gold-silver deposits. The Oak Spring district (No. 17 on figure 2-9) at the north end of Yucca Flat has potential for new discoveries for tungsten-molybdenum and lead-silver deposits. Also, inasmuch as uranium mineral a few miles west of the Nellis AF Range and elsewhere in the Great Basin typically are found in Tertiary volcanic rocks and tuffaceous sedimentary rocks of silicic composition, particularly in the vicinity of volcanic centers, it appears that a fairly large area of ground having a potential for uranium resources could exist in the western part of the Range. Finally, some areas, mainly within mountain ranges, are covered by Tertiary volcanic rocks less than 1,000 feet thick, and areas up to several miles wide, peripheral to the ranges are covered by alluvial material less than 1,000 feet thick. The bedrock beneath this relatively thin cover in places, as around the north end of Yucca Flat, may have a potential for mineral resources.

The USGS and BM recommend that an onsite mineral resource study of the Nellis Range should be conducted to determine areas having potential for mineral resources. Further geological, geochemical, and geophysical investigations would be required to confirm the significance of these potential resource area.

WILDERNESS

On June 13, 1974, FWS proposed 1,332,900 acres of the DNWR be designated as a unit of the National Wilderness Preservation System. The Air Force ground-use areas, approximately 16% of the DNWR are not included in the wilderness proposal [8]: Air space utilization by the Air Force in Nellis Range activities includes all of the proposed Wilderness area. Figure 1-9 shows the boundaries of the Nellis AF Range, DNWR, and the proposed wilderness area.

The MOU between the Air Force and FWS restricts target facilities on the South Range to below 3,600 foot elevation contour line in the Indian Springs Valley and below the 4,000 foot contour line in the Three Lake Valley. Within the limits of practicability aircraft cannot operate below 2,000 feet above ground level except when using air-to-ground targets and the runways at Indian Springs AAF. Air-to-air training and gunnery operations over subrange 62 and 64 (figure 1-2) must be conducted above 10,000 feet.

Aircraft operations and training exercises are considerably different on the North Range from those conducted over the South Range. The North Range is a tactical range and in general requires the flexibility for aircraft to approach the targets from any direction. Ingress and egress routes to the subranges are established by the aircrews based on the scenario they intend to fly. Many scenarios require low approaches (100 feet above ground level) to the target. Additionally, the aircrews perform final ordnance arming when they enter the North Range boundary. Final arming must be conducted over restricted land since there is a possibility of inadvertent ordnance release during the arming cycle.

An evaluation of the North Range has been completed by BLM and indicates that the majority of the Range contains numerous hazards to human health and safety. Hazardous areas and conditions on the Nellis AF North Range include:

- eight areas of radioactive contamination.
- nine ordnance burial sites.
- the TTR (369,000 acres) and the Pahute Mesa area (172,000 acres) which are also intensively used by DOE.
- thirty-four extensive target arrays which are currently being intensively used,
- electronic warfare and monitoring equipment on the higher terrain,
- unexploded ordnance which has been dropped throughout the North Range over a period of about 40 years on established targets, targets of opportunity, land forms and other identifiable features. With the exception of established targets, the location and amount of unexploded ordnance is unknown.
- restricted airspace, with no ground access allowed without close supervision.
- numerous access roads which are currently used by the Air Force and DOE.

BLM has coordinated the North Range wilderness evaluation with representatives of the Sierra Club, Nevada Outdoor Recreation Association, and the University of Nevada, Reno, Recreation Department in March 1978 and subsequently with a representative of Friends of Nevada Wilderness. The only area identified by the representatives of the various groups was a part of the Kawich Range which extends into the North Range. (See figure 1-2, subranges 72 and 73.) They felt this area should be inventoried as a potential area of critical environmental concern as defined in P.L. 94-579 (areas within public lands where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes, or to protect life and safety from natural hazards). The Air Force and BLM conducted a reconnaissance of the questioned area and concluded the resources are protected under the Five Party Cooperative Agreement (see page 1-34).

Considering the above aircraft operations, present land uses, and safety hazards of unexploded ordnance the North Range is not considered to meet the wilderness criteria as outlined in Section 2(c) of the Wilderness Act of 1964.

LAND USE PLANS, CONTROLS AND CONSTRAINTS

Lands comprising the Nellis AF Range have been withdrawn by various PLOs, E.O., and one P.L. since 1940. The national policy for using the public land is well established - national defense. In order to assure proper utilization of these lands, MOUs have been instituted with various Federal and State agencies, stipulating various controls and constraints. Air Force operations on the Range are in strict agreement with the aforementioned controls and constraints and will remain so if the proposed renewal is approved.

Additional Nevada State legislation that concerns land use plans is given in table 2-8. Generally, these laws deal with solid waste disposal and control of fugitive dust.

Use of the Range by the Air Force and DOE has contaminated various areas with ordnance and radioactivity. Although there have been many programs instituted by the Air Force to remove unexploded ordnance, these programs have provided surface clearance only. Subsurface ordnance may be found in many locations throughout the Range since target complexes have been moved to new locations over the years. Additionally, prior to developing targets, aircrews dropped live ordnance on natural features through the Range. Therefore, the Air Force considers the land not safe for public use in its present condition.

TABLE 2-8

LAND-USE CONTROLS

<u>CELDS Reference NO. *</u>	<u>TITLE OF NEVADA STATE LAW</u>	<u>APPLICABLE SECTION</u>
1751	Solid Waste Land Disposal Site Locations	Sited to prevent water pollution, control measures to prevent Vector problems, must conform to land use plans, and site must be approved by state.
1744	General Rules for Solid Waste Disposal	Waste cannot be deposited within 4 feet of highest ground water table.
1753	Solid Waste Land Disposal Operations and Maintenance	Applicable operation and maintenance of land fills
1745	Disposal of Hazardous Waste	Cover waste with at least 4 feet of dirt. Oil, grease, and sludge cannot be buried unless approved by state.
1787	Underground Disposal of Radioactive or Toxic Waste	Permit required to discharge radioactive or toxic waste underground in liquid or explosive form.
1760	Permits for Air Contaminant Source	Permit required for any construction that disturbs topsoil of more than 20 acres.
1766	Fugitive Dust	Use of unpaved or untreated roads prohibited in areas designated by Director without some type of control. No topsoil or vegetative cover can be removed on 20 acres or more without permit.
1756	Permit for Activities Affecting Wildlife Habitat	Consent of Nevada Fish and Game required to remove vegetative cover on any watershed

* SOURCE: Computer-aided Environmental Legislative Data System, Civil Engineering Center, Tyndall AFB, FL., 32403.

SOCIO-ECONOMIC CONDITIONS

The Bureau of Economic Analysis, U.S. Department of Commerce, divides the nation into numerous areas for statistical projection purposes. Clark, Esmeralda, Lincoln, and Nye Counties are treated as an economic unit in Southern Nevada and will be used in this document as the region of influence.

POPULATION

Nevada's population growth in the 1960s averaged 5.53 percent annually (from 285,278 in 1960 to 488,738 in 1970). This annual rate of growth slowed to 4.28 percent between 1970 and 1975.

Clark County had 56 percent of the state population in 1975. Between 1960 and 1970 the population growth was at a 7.96 percent average annual rate but slowed to 4.32 percent between 1970 and 1975. (See table 2-9)

The regional population of the four counties in southern Nevada (Clark, Esmeralda, Lincoln, and Nye) represented 47 percent of the state total in 1960; however, that expanded to 58 percent between 1970 and 1975.

EMPLOYMENT

The dominant industry, in terms of total number employed in this region, is the resort, gambling, and tourist industry in Las Vegas. Next in importance are Federal Services in Nye and Clark Counties. Third in significance is manufacturing. Economic and employment benefits flow mainly to Clark County. Employment outside the basic sectors is primarily in retail, financial, construction, transportation, equipment, utilities and government services [4].

Nellis AFB, including the Nellis AF Range, currently employs 8,860 military and civilian personnel in Clark County and is the area's largest employer.

The establishment-based industrial employment in 1970 and 1974 for Clark, Esmeralda, Lincoln, and Nye Counties is provided in table 2-10 A, B, C and D, respectively.

TABLE 2-9
 POPULATION FOR SELECTED COUNTIES AND STATE OF
 NEVADA
 1960, 1970 AND 1975

	1960	1970	1975
Clark County	127,016	273,288	337,597
Esmeralda County	619	629	862
Lincoln County	2,431	2,557	2,892
Nye County	4,374	5,599	6,400
4 County Total	134,440	282,073	347,751
Percent of State	47%	58%	58%
State of Nevada	285,278	488,738	602,793

SOURCE: Bureau of Business and Economic Research, University of Nevada - Reno, Revised March, 1977.

TABLE 2-10A

CLARK COUNTY ESTABLISHMENT-BASED INDUSTRIAL EMPLOYMENT
1970, 1974

INDUSTRIAL SECTOR	EMPLOYMENT BY COUNTY		
	1970	1974	% Change
Mining	100	200	+100
Construction	7,400	9,000	+ 22
Manufacturing	4,300	5,100	+ 19
Public Utilities	7,300	8,700	+ 19
Trade	20,700	26,600	+ 29
Finance, Insurance & R.E.	4,200	5,700	+ 36
Services (1)	51,000	65,500	+ 30
Government	16,200	18,500	+ 15
Unemployment	6,800	11,900	+ 74

SOURCE: Manpower Data by Sector and County 1970 and 1974, Manpower Information and Research, Employment Security Department, Carson City, Nevada, 1970 and 1974.

(1) Includes agricultural services and Firms not elsewhere classified.

TABLE 10-2B

ESMERALDA COUNTY ESTABLISHMENT-BASED INDUSTRIAL EMPLOYMENT
1970, 1974

INDUSTRIAL SECTOR	EMPLOYMENT BY COUNTY		% Change
	1970	1974	
Mining	130	100	- 23
Construction	40	30	- 25
Manufacturing	0	0	-
Public Utilities	0	0	-
Trade	20	20	-
Finance, Insurance & R.E.	0	0	-
Services (1)	*	*	-
Government	70	70	-
Unemployment	10	20	+100

SOURCE: Manpower Data by Sector and County 1970 and 1974, Manpower Information and Research, Employment Security Department, Carson City, Nevada, 1970 and 1974.

(1) Includes agricultural services and firms not elsewhere classified.

* Less than ten

TABLE 2-10C
LINCOLN COUNTY ESTABLISHMENT-BASED INDUSTRIAL EMPLOYMENT
1970, 1974

INDUSTRIAL SECTOR	EMPLOYMENT BY COUNTY		% Change
	1970	1974	
Mining	80	130	+ 63
Construction	*	30	
Manufacturing	*	20	
Public Utilities	80	90	+ 13
Trade	100	130	+ 30
Finance, Insurance & R.E.	*	10	
Services (1)	60	70	+ 67
Government	270	290	+ 7
Unemployment	110	100	- 9

SOURCE: Manpower Data by Sector and County 1970 and 1974, Manpower Information and Research, Employment Security Department, Carson City, Nevada, 1970 and 1974

(1) Includes agricultural services and firms not elsewhere classified.

* Less than ten

TABLE 2-10D
 NYE COUNTY ESTABLISHMENT-BASED INDUSTRIAL EMPLOYMENT
 1970, 1974

INDUSTRIAL SECTOR	EMPLOYMENT BY COUNTY		% Change
	1970	1974	
Mining	350	440	+ 26
Construction	100	110	+ 11
Manufacturing	10	20	+100
Public Utilities	70	110	+ 57
Trade	270	270	-
Finance, Insurance & R.E.	20	50	+150
Services (1)	5,090	3,510	- 31
Government	480	460	- 4
Unemployment	40	110	+175

SOURCE: Manpower Data by Sector and County 1970 and 1974, Manpower Information and Research, Employment Security Department, Carson City, Nevada, 1970 and 1974.

(1) Includes agricultural services and firms not elsewhere classified.

INCOME AND EXPENDITURES

The services sector is the largest single source of personal income in Clark and Nye counties (\$679.4 and \$57.7 million respectively in 1974 [2]). Government was the largest inductor of personal income in Esmeralda and Lincoln counties (\$0.46 and \$2.85 million, respectively in 1974) [2]. The region has seen a marked increase in personal income from \$1,142 to \$1,664 million in 1974. This is a 46 percent increase over the four year period and mainly comes from expansion in the Clark County service sector.

Per capita income from Clark, Esmeralda, Lincoln and Nye counties was \$5,988, \$3,574, \$4,437, and \$4,197 respectively in 1974 [2].

Personnel income (military and civilian) at Nellis AFB and the TFWC Range Group was \$87.3 and \$17.8 million, respectively, in fiscal year 1978. The operations and maintenance budgets for the Base and Range Group in fiscal year 1978 was \$29.8 and \$32.5 million, respectively. In general, the operations and maintenance budget includes funds for supplies, equipment, and services.

About 60 percent of the payroll is spent in the local economy. It is estimated that 2,400 Air Force families rent homes and an additional 2,500 Air Force families have purchased homes in Clark County.

Currently the personnel who operate the Range live at Tonopah and Beatty (both towns are in Nye County). At Tonopah, the Air Force is under contract for 101 bed spaces in two motels for a total cost of \$490,476 per year. It is anticipated the Air Force personnel spend \$212,200 per year in the local economy of Tonopah for food and recreation. Personnel living in Beatty spend about \$184,000 per year for rental accommodations and about \$114,900 per year for food and services.

GOVERNMENT FINANCE AND TAXATION

Assessed valuation for Clark County was \$1,665,102,836 for fiscal year 1975-1976. Esmeralda, Lincoln, and Nye Counties has a combined assessed valuation of \$86,199,987 for the 1975-1976 fiscal year.

By state authority the rate of taxation cannot exceed five percent of the assessed valuation; this includes local, county, regional, and state taxing bodies with the exception of special tax districts. Clark County has a combined unit rate of 3.58 percent while Esmeralda, Lincoln, and Nye Counties had 3.9, 3.5, and 3.4 percent, respectively.

Additional revenues should be generated in these four counties through the in-lieu tax. The in-lieu tax provides for the redistribution of Federal revenues to counties having Federal lands. These tax revenues go to county budgets, and should not appreciably affect the cities and towns.

HOUSING

Nellis AFB and the Range personnel predominately live in Clark and Nye Counties. In Nye County, the towns of Beatty and Tonopah are used by the Range personnel for lodging when working on the Range.

DOI [20] reported 120,966 occupied housing units in the Las Vegas area. Of these, 73,389 are single-family, 33,089 are apartments, and 15,040 are mobile homes. There is no indication of the vacancy rates; however, based on housing surveys conducted by Nellis AFB, housing is available but often expensive to purchase. Nellis AFB provided 2,446 dorm spaces and 1,260 family housing units. In Tonopah and Beatty there were 970 and 3,337 housing units, respectively [18]. In 1970, Nye County had a housing shortage of 313 units; with the Beatty and Tonopah townships representing 16.1 and 46.3 percent of the available housing units, and 22.4 and 42.1 percent of the county population, respectively [18].

It is estimated that 2,400 Air Force families rent homes and an additional 2,500 families have purchased homes in Clark County. All Air Force civilian personnel are restricted from military base housing; therefore, they either buy or rent housing accommodations in the Las Vegas - Henderson area.

Range personnel who reside in Beatty, based on 1970 housing statistics, utilize about 11 percent of the available units. Military personnel in Tonopah use Air Force contracted quarters, and, therefore, do not contribute to the area's housing problems.

In Tonopah there are 290 motel units of which the Air Force has contracted 101 for military personnel working in the TTR area of the North Range. It is reported through the Tonopah Convention Center that the yearly occupancy rate of the motels in Tonopah averages 90 percent. Based on an average room rate of about \$20 per day, plus a 5 percent room tax, the industry grosses about \$1,226,400 annually. The Air Force current contract for the two motels is \$490,476. This gives a combined income for the industry of \$1,716,876. The Air Force contract is exempt from the room tax.

HEALTH FACILITIES

Nye General Hospital (Tonopah), the only hospital in Nye County, provides acute and long-term care services. The service area is centered in Tonopah, Goldfield, Warm Springs, Silver Peak, Dyer, and Lida Junction. The residents of Beatty, Lathrop Wells, and Pahrump are considered to be in the Clark County Service area.

Two physicians live in Tonopah and one physician assistant serves Goldfield. One public health nurse serves Nye and Esmeralda Counties, while no school nurses are recorded for Nye. At the present time, a traveling dentist and a traveling optometrist each spend two days per month in Nye County.

SOCIAL ATTITUDES, EXPECTATIONS, AND LIFE STYLE

Resident leaders in the Las Vegas metropolitan area and in the smaller communities of the Moapa Valley, defined their communities as attractive places to live. Asked to state negative aspects, the metropolitan respondents mentioned such things as increasing air pollution and traffic congestion. The rural respondents were more concerned about a lack of local services, particularly hospital and medical care.

Rural and urban opinion leaders gave the most positive ratings to such factors as: a good place to raise a family; quality of local schools; recreational opportunities; and quality of the physical environment. While all areas have certain disadvantages that affect quality of life, the overwhelming feeling was that Clark County communities are good places to live.

The Las Vegas metropolitan area is a fairly normal residential community inhabited by persons with values and goals much like those of residents of similar cities in the county. A "value-profile" of the area [18] indicates that residents strongly value such things as quality educational opportunities for their children, family life, and personal honesty and trust. They tend to favor economic development and industrial growth and expansion for their communities. Personal status and environmental concerns receive less emphasis.

INFRASTRUCTURES

The Nellis AF Range is geographically located northwest of Las Vegas, NV, in Clark, Lincoln, and Nye Counties. It is bordered by U.S. Highways 95 on the south and west, 6 on the northside, 25, 91, and 93 on the east side (see figure 1-1). Maintenance equipment and supplies are brought from Nellis AFB onto the Range via these highway systems. The Nellis AF Range has four primary access routes: (1) southern access through Indian Springs, (2) north-east access on Valley Road from State Highway 25, (3) from the west via a road at Goldfield, and (4) from the west via county road north of Springdale.

The regional transportation network has approximately 20 bridges and interchanges; about half of these are located on U.S. 95 between Las Vegas and Tonopah. Bridge capacities are rated at 20 tons gross vehicle weight [4]. The widths and carrying capacity of these structures are adequate to serve the Air Force transportation requirements.

Electric power for the area is supplied by the Nevada Power Company, Valley Cooperative Association, Sierra Pacific Power Company, and Lincoln County Power District No. 1. The latter is planning to extend service to within ten miles of the Nellis AF Range [4]. There are four utility systems on the TTR and none on the southwest border of the Nellis Range. Some public utilities are routed along the southwest border of the Nellis Range and provide ample service to Indian Springs AAF and the South Range Area.

Currently solid waste is disposed at the landfill at Indian Springs AAF. The fill site is 150 acres with approximately 50 acres presently full. At the current rate of waste generation, 200 tons/yr, the projected life of the facility is approximately ten years. Indian Springs AAF is currently working with local officials to obtain approval to use the Indian Springs municipal landfill. However, if this approval is not obtained, they will have to prepare a detailed design and operating plan to meet the State and Environmental Protection Agency Guidelines for the Land Disposal of Solid Waste (40 CFR 241). Future development of the maintenance complex for electronic warfare equipment (projected for the North Range) might require a landfill and sanitary sewage treatment system. As these facilities are defined, engineering plans will be instituted to assure all applicable regulations are met.

HAZARDS AND SAFETY

The main concerns associated with the use of the Nellis AF Range are aircraft noise, sonic booms, range contamination from unexploded ordnance, radioactivity, seismicity, and potential range fires.

Supersonic activity is primarily associated with mock aircraft duels conducted in the Air Combat Maneuvering (ACM) area over the South Range. AMC missions are expected to generate some sonic boom overpressures up to 5 lb/ft² which may extend in width on the ground from 30 to 35 miles at boom cutoff. Overpressure on the ground, at the cutoff point may be between 0.6 and 1.2 lb/ft² depending on source mach number and type of aircraft.

Existing operational restrictions and the MOU with FWS require that supersonic activity avoid populated or otherwise sensitive areas. During a mock-duel, the aircraft usually are supersonic for a short period of time. The area in which aircraft

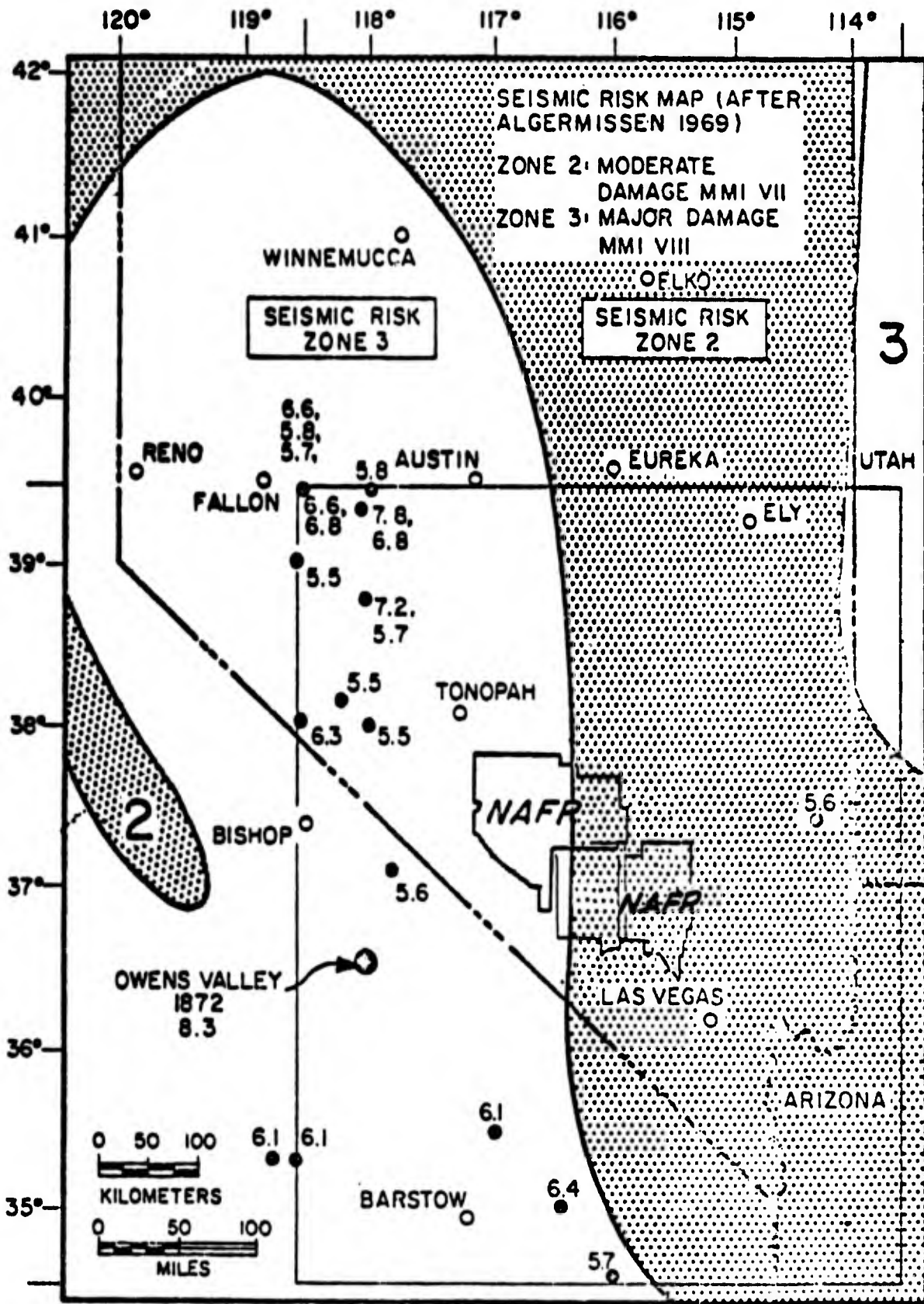
go supersonic is generally the center of the individual training areas; however, sonic booms may occur over the entire training area.

There is previous history of sonic booms occurring in the air-space over the Nellis AF Range. During 1977, the Air Force Sonic Boom Repository reported 4,969 booms occurring on the Nellis AF Range. The Air Force projects a modest increase in ACM missions; therefore, this increased activity with respect to potential impacts will be analyzed in this document.

The potential safety hazard from unexploded ordnance and radioactivity has been previously addressed in this chapter; however, the potential is far too great not to be discussed here. From October 1976 to September 1977, 49,750 manhours were expended to surface clear 341,750 acres of range land. This is a tedious job and, although meant to be thorough, no guarantee can be given that additional ordnance is not present on the surface. It is not uncommon to find unexploded ordnance in areas that have been previously surveyed. No attempts have been made to remove subsurface ordnance except in those areas around the targets. Due to erosion forces some subsurface ordnance is uncovered and then is accessible for collection. To completely remove all ordnance from the range would mean essentially all vegetation would have to be cleared and the topsoil bladed. The environmental consequences would be too great to conduct this type program. Consequently, public access must be restricted.

The southern Nevada region is generally characterized as an area of moderate seismic activity. (See figure 2-10.) There have been some 4,000 earthquakes recorded between 1900 and 1974 within an area of 95,000 square miles, centered about the NTS. The NTS is located between the North and South Ranges of the Nellis AF Range. Most of the earthquakes were small inconsequential events with only 21 having magnitudes of 5.5 or larger. From September 1961 to December 1973, there were 390 recorded seismic events located on the NTS. The vast majority of this activity was the result of nuclear tests and after-shocks related to those tests.

All underground nuclear explosions are followed by a sequence of small earthquakes which may persist from hours and days upward to several months. During the period prior to the cavity collapse, most of the seismicity correlates with the deterioration of the explosive cavity. After collapse occurs, the after-shock sequence for smaller-yield events usually ceases completely. For high-yield events, after-shocks will continue to occur in the media surrounding the shock point. In such cases, there is an apparent alignment of after-shock hypocenters with subsurface geologic structures. At one time, as many as 34 high-gain seismometers, located on and adjacent to Pahute Mesa, were utilized in the study of the seismicity preceding and following



F

SEISMIC ACTIVITY

FIGURE 2-10

megaton explosions. These studies have shown that in an area having a radius of 8.7 miles from the point of ground zero and extending down to within three (3) miles of the surface, the distribution of after-shocks appears to be controlled by pre-existing geologic structures. The after-shock sequence generally decays to a background level within a period of several weeks.

"A comprehensive study completed in 1974 examined the regional seismicity and tectonics of the NTS from 1952 through 1973. The results of this study showed that the underground nuclear testing program did not produce any detectable influence on the natural patterns of earthquake activity except in the immediate area of the shots [3]."

Due to the dry arid climate, there is a potential for range fires caused by live ordnance, aircraft crashes, or natural means. Many aircraft training operations utilize live ordnance; and frequently, spotting flares are used to illuminate targets. In order to reduce the fire potential during abnormal vegetative growth years, target complexes where live ordnance or flares are used, the vegetative cover is cleared out to a 2,000 foot radius from the target. From 1976 to August 1980 there has been an average of 4.6 aircraft crashes on the Nellis AF Range. Very few of these crashes are thought to have caused a significant fire. The Air Force feels the majority of range fires are caused by natural means. The Air Force has facilities and equipment which can be augmented by that of BLM and FWS to provide fire protection.

As discussed in Chapter 1, page 1-21 and 1-25, the DOE has conducted a series of safety and cratering tests on the North Range. These tests have contaminated a total of 2,819 acres of land. Radioactive isotopes used in the safety tests were depleted uranium and plutonium. Cesium-137, strontium-90, and other fission products were produced in the cratering test.

The above ground areas, where safety experiments have been conducted, offer unique sites for studies of the behavior of plutonium in the natural desert environment. Recognizing this, DOE intentionally has preserved these sites. Studies have been conducted to determine the concentration of plutonium and other nuclides in the soil, biota, and resuspension in the air.

An intensive soil sampling program has been done in the safety shot areas. It is estimated there is a total of 113 curies (4 pounds) of plutonium in the top five centimeters of the 323 acres (fenced areas). Concentrations of radioactive isotopes, near ground zero, range from 120 microcuries/m² (Clean Slate I) to about 2,800 microcuries/m² (Double Track) and progressively get smaller with increasing distance from ground zero.

Radionuclide levels in and on vegetation correlate relatively well with levels in the soil. The greatest amount of radionuclides measured for vegetation is contributed by radioactive dust on the plants rather than by radioisotopes taken up into the plants through the roots. "The discrimination ratio against plutonium being absorbed into the plants by way of root uptake, for instance, is of the order of 10^{-5} as compared to the amount in the soil [3]." Radioactive levels on various species of plant surfaces can vary by four orders of magnitude, depending mainly on the ability of external surfaces of the plants to retain particles. The inventory of plutonium for plants in the study areas, in comparison to the inventory for soils, is very small; for example, the inventory of plutonium for plants at the Project 57 site is only 0.00265 curies, compared with the soil inventory of 44 curies [3].

Radioactivity levels in vertebrates vary considerably with species, their habitat, and residence time in the area. In general however, the quantities of radionuclides on external surfaces (skin and hair) and in the gastrointestinal tracts correlate well with the contaminated environment in which the vertebrates reside. Radioactivity levels of plutonium on external surfaces and in the gastrointestinal tracts are at about the same level or one order of magnitude less than in the soil. Plutonium levels in tissues range from about three to five orders of magnitude less than the levels in soil. These low levels of plutonium in tissue are explicable because of the high discrimination against plutonium (and other transuranics of interest here) being absorbed from the lungs or gastrointestinal tract. Correlative experiments with transuranic elements at the DOE farm on the NTS, and results for beef herd grazing and wild-life also demonstrate high discrimination (10^{-4} to 10^{-5}) against transuranics.

Another area of study has been the transport of plutonium through entrainment or resuspension in the air. Resuspension measurements of radioactive materials in the air show that on the average extremely low quantities (on the order of a billionth) of the surface materials are being resuspended in air above the study sites. Possibly these levels are particularly low because the areas are vegetated and have stable soil surfaces, thus allowing little soil erosion by wind, even at high wind speeds. Concentrations of radioisotopes in air decrease by orders of magnitude within a few thousand feet, as the suspended particles settle to the ground. Except within the immediate area of the test shots, the radioactive materials in the air are close to worldwide or background levels. "Offsite measurements show no radioisotope concentrations which are statistically above those measured for many years. These observations appear to indicate that no detectable quantities of radioactive material are leaving the site via atmospheric resuspension [3]."

The potential spread of beryllium and depleted uranium from the Non-violent Explosive Destruct System (NEDS) test is another area of hazard and thus is described below.

In the NEDS test, quantities of beryllium of the order of 2.2 pounds and depleted uranium (where most of the U-235 isotope is removed) of the order of 22 pounds (0.003 curies) are used. The earliest tests were carried out unconfined, studying what forces containment casks would have to withstand. In these, the uranium was scattered in large pieces which could be recovered but most of the beryllium was dispersed as a particulate too small to recover. In subsequent tests containment casks are used, but some fail. In these, about 80 percent of the uranium and 75 percent of the beryllium are in large enough pieces to recover.

Uranium is a naturally occurring element which in nature is composed of 99.3% U-238, 0.7% U-235, and 0.0006% U-234. Each of these alpha-emitting isotopes begin a series of decay products that end in a stable isotope of lead. Biological concentration of uranium along the food chains does not seem to occur [9]. The chief effects noted with animals and plants are attributed to the chemical toxicity of uranium rather than its radioactivity. The chemical toxicity of uranium in humans relates to effects on kidney functions. At lower levels these changes are reversible in that they disappear when exposure stops. In dispersal of large pieces, plant toxicity may occur at soil concentrations near 50 micrograms per gram of soil near the roots and acute toxicity may occur at levels ten times this value [9]. Since the large pieces are picked up, there should be minimal problems. That which is too small to recover has been evaluated by DOE [9] to be an insignificant problem in respect to its radiation or potential plant toxicity.

Beryllium is a nonradioactive element presenting two potential hazards to health. If inhaled over an extended time, beryllium may lessen the efficiency of an individual's lungs and in severe cases may be fatal. If beryllium enters a break in the skin, a slowly healing ulcer may form until the beryllium is surgically removed. Beryllium enters the body almost entirely by inhalation. The experimental evidence is that little beryllium is absorbed through the intestinal wall. "Animals fed the metal or the metal oxide at a level of 5% of their diet absorbed the beryllium so poorly that no effect on growth occurred over long periods of feeding [9]."

Soil samples collected after a total of 18 NEDS tests indicate that beryllium levels in the soil at the point of detonation and up to 100 feet down wind are less than the limit of detection, 5 mg/g soil [9].

After evaluation of present knowledge of potential hazards of plutonium and other radionuclides disseminated into the natural environment by DOE operations on the NTS and the Nellis AF Range, the degree of hazard appears to be extremely low. DOE has committed to continued surveillance of these areas to assure their established safety parameters provide maximum environmental protection.

Due to previous mining activity on the Nellis AF Range, there may be some open verticle mine shafts that have not been fensed.

There is a potential for range fires on the Nellis AF Range. Fires may originate from aircraft crashes, ordnance deliveries, or natural means. Depending upon the location of a fire, a few to several hundred acres could be burned. The amount and type of vegetation lost would be a factor of the fire location, density of vegetation and winds. During the infrequent years when there is an abnormally large vegetation cover (years of high fall precipitation followed by adequate spring moisture to cause a heavy growth of ephemeral species) a considerable number of acres could be lost in a range fire.

From 1976 to August 1980, there has been an average of 4.6 per year aircraft crashes on the Nellis AF Range. Historical records of the crashes do not indicate the magnitude of any range fire (or if in fact one did occur). Range personnel indicate very few of the fires that have occurred in the past were the result of ordnance deliveries or aircraft crashes. Normally, crash fires involve the aircraft and the immediate crash site.

CHAPTER III

ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION

Impacts described within this section are those which are likely to occur should the Air Force be granted continued withdrawal of the public lands for use as the Nellis AF Range.

Potential impacts are discussed and described in relation to the future plans of operation and developments for both the DOE and the Air Force.

CLIMATE

The climate of the study area should not be impacted by any of the future plans of operations and developments. The climate does, however, have an interrelationship with other potential impacts. Soil erosion, removal of vegetation, and subsequent revegetation on construction or target sites are controlled to some degree by climatic conditions.

AIR QUALITY

Pollutant contribution to local air quality would be generated in the form of fugitive dust (from construction activities and range maintenance) and particulate and gaseous emissions from aircraft operations. Also ordnance detonation will cause fugitive dust, particulate and gaseous emissions.

The quantity of dust generated from heavy construction operations are generally proportional to the area of land being worked, level of activity, type soil, and inversely proportional to the square of the moisture content. EPA [16] has adopted an emission factor of 1.2 tons per acre per month for fugitive dust generation from heavy construction activities. This factor is generally applicable to soils which have about 30 percent silt and a precipitation-evaporation (PE) index of 50. Soils on the Range average less than 5 percent silt and have a PE index of about 13. Considering the range of these values, the 1.2 tons per month should be sufficiently descriptive to indicate the magnitude of dust generation from heavy construction activities described in this document. Since installation of an electrical line will not involve grading, ground excavation, or cut and fill operations, the fugitive dust generation will be assessed by using one-half of the heavy construction emission factor. Even at this rate, the value is considered to be high but is a compromise between values for vehicles and heavy construction.

Table 3-1 shows the projects which would generate fugitive dust during the construction phase. Fugitive dust impact would be intermittent and somewhat restricted to the local area. Emissions for underground nuclear testing are not 3-1

tabularized in table 3-1 since the majority of the projected 150 acres per test would be disturbed during formation of the subsidence crater and no emission rates are available for this type of operation. It is emphasized that not all tests form subsidence craters. The underground nuclear waste burial project indicated for the Yucca Mountain area is in the concept stage. If DOE decides to proceed beyond the research and development stage, an environmental analysis would have to be prepared and would provide data on anticipated air quality impacts.

In addition to those sources listed in table 3-1, fugitive dust would continue to be generated by vehicular traffic on gravel roads and maintenance activities around target complexes. Once the road projects are completed, vehicle generated dust should be cut approximately in half due to the stabilizing effect of the oil/chip and gravel surface.

Since the projects and activities which generate fugitive dust would not be in one local area but would be spread out over the Range and may be constructed at different time periods, it is not anticipated there should be any significant impact to the local air quality. Dispersion analysis of fugitive dust from road construction indicates a downwind particulate concentration of 50 micrograms per cubic meter at one mile from the construction site. At two miles, the concentration would decrease to 14 micrograms per cubic meter. These concentrations would be experienced for about two-thirds of the day, the remaining third would be at normal background levels. Comparison of these figures with the daily standard for particulates (table 2-3) indicates the activity will not result in exceeding the particulate air quality standards for the area.

Military aircraft would emit large quantities of pollutants into the atmosphere. Table 3-2 shows the projected annual aircraft emissions through 1985. Most of the Range training operations are conducted in the morning and up through mid-afternoon to take advantage of the more stable atmospheric conditions. Thermal rises are characteristic of the afternoon conditions and present problems in maintaining the aircraft on course during low level training; however, sorties are flown in the afternoon when the Range time schedule is booked for morning activities.

Since most sorties flown over the Nellis AF Range emanate from Nellis AFB, secondary impacts to the Las Vegas Air Quality Maintenance Area must be considered. Naugle [17] has dispersion modeled annual emissions from approximately 56,000 landings and take-offs from Nellis AFB. Results of the Nellis AFB portion of this study are shown in table 3-3. Values shown represent aircraft emission contribution to existing ambient air quality at a distance of three miles from the centerline of the runway. Comparison of the estimated annual concentrations, with the annual

average of pollutants shown in table 2-3, show quality conditions. Although the accuracy of this particular modeling study was not validated by comparing model predictions with actual air quality measurements, experience with air quality models of this type have shown them to be accurate within a factor of two. Within this range of accuracy, the Nellis AFB modeling reliability substantiates the contention that military aircraft activity does not significantly impact local air quality in the Las Vegas Air Quality Maintenance Area.

TABLE 3-1

PROJECTED ASSESSMENT OF FUGITIVE DUST GENERATION

<u>PROJECT</u>	<u>TOTAL ACRES</u>	<u>NO. OF MONTHS</u>	<u>ACRES/MO.</u>	<u>EMISSION RATE</u>	<u>TONS-MO.</u>
ROADS	585	40	14.6	1.2	17.6
EW TARGETS	200	5	2.0	1.2	2.4
SUPPORT COMPLEX	4	3	1.3	1.2	1.6
ELECTRIC LINE	60	2	30.0	0.6	18.0
UNDERGROUND NUCLEAR TESTING	150/SHOT	-	-	-	-
NUCLEAR WASTE EXPLORATORY DRILLING	50	-	-	-	-

TABLE 3-2

PROJECTED AIRCRAFT EMISSIONS (metric tons/year)

<u>POLLUTANT</u>	<u>1977</u>	<u>1985</u>
PARTICULATES	243.6	108.2
CARBON MONOXIDE	563.1	413.5
HYDROCARBONS	38.5	27.8
NITROGEN OXIDES	1,736.8	2,182.2
SULFUR OXIDES	151.6	134.6

TABLE 3-3

DISPERSION ESTIMATE OF AIRCRAFT EMISSIONS AT NELLIS AFB

<u>POLLUTANT</u>	<u>EMISSIONS (met. tons/yr)</u>	<u>CONTRIBUTION TO AMBIENT CONCENTRATIONS (Ug/m3)</u>
PARTICULATES	35	0.3
CARBON MONOXIDE	1100	13.1
HYDROCARBONS	240	3.1
NITROGEN OXIDES	200	1.5
SULFUR OXIDES	23	0.1

In order to relate the potential impacts of aircraft emissions on the Nellis AF Range, a comparison of acres on the Range to that impacted from the Nellis AFB modeling study is provided. Review of aircraft operations given throughout Chapter 1 show the aircraft emissions would be spread over most of the 2,945,726 acres. The Nellis study involved about 39,000 acres. Pollutants emitted above the mixing height exhibit very little to no impact on local ground level air quality. Holzworth [10] shows the annual average mixing height is about 1,100 feet in the morning and ranges up to about 8,000 feet in late afternoon. Consequently, less than fifty percent of the aircraft emissions shown in table 3-2 will be emitted below the mixing height.

Considering the area of impact, dispersion characteristics over the Range, and predicted amount of emissions below the mixing height, it is very unlikely that the aircraft emissions will cause local air quality standards to be exceeded.

DOE operations on the TTR and Pahute Mesa are not projected to increase in activity. Impacts associated with underground explosions and drop testing of ordnance would continue to cause fugitive dust to the same magnitude as present operations.

Radioactive noble gases are expected to be released to the atmosphere during drillback operations and from tunnel ventilations. Several hundred curies of radioactive noble gases (primarily xenon-133) have been released per year in the past. For example, in 1975 and 1976 this release was 22 and 91 curies, respectively [3]. The amounts released in the future will fluctuate depending upon the particular drilling and tunnel conditions.

"The measured concentrations of tritium and xenon-133 at offsite locations, when averaged over the year, have remained less than 0.01 percent of the concentration guides for a suitable sample of the population, as set forth in ERDAM 0524. The increased average concentrations of krypton-85 on-site have been discernible only by applying statistical techniques to the data. Atmospheric dilution of the krypton-85 reduced the concentrations to the point that they are not detectable off-site. It is unlikely that testing programs in the future will produce atmospheric concentrations of gaseous radionuclides greater than those observed to date [3]."

"Radioactivity attributable to the resuspension of dust particles in the air from contaminated areas on-site has never been detected in off-site samples and is not expected to be in the future [3]." More detailed analysis of radioactivity impacts from DOE operations are given in reference 3.

The overall impact on air quality for the Clark-Mohave Interstate and Nevada Intrastate Air Quality Control Regions is not considered to be significant.

TOPOGRAPHY AND GEOLOGICAL SETTING

Construction of the proposed facilities and continued operations of the Nellis AF Range would not impact the topography in a significant way. Some land features would be altered by constructing the EW sites and gravel pits which are required in the roads improvement project.

Ordnance dropped on the Range by the Air Force and DOE on the TTR and underground explosions on Pahute Mesa would continue to scar the surface. However, the magnitude (acres) of these scars would remain small in comparison to the total acreage of the Range and the presently altered areas. Currently 0.4% of the Range acreage has been disturbed. The proposed action will increase this to about 0.6%.

Energy Research Development and Administration (now DOE) [3] has studied the seismicity pattern of Pahute Mesa in connection with high yield tests. Ground motion from some explosions can be expected to cause displacement along pre-existing faults near the explosion sites. "Any displacement along pre-existing faults is not expected to extend beyond the boundaries of the test areas and none will produce any significant environmental effect insofar as present or foreseeable use of the test site is concerned (3)."

SOILS AND WATERSHED

Disturbance of the soil profile by the construction activities and continued ordnance deliveries by both the Air Force and DOE would impact the soils of the Range. Activities which compact the soil will reduce infiltration rates and increase the potential for sheet and rill erosion. When organic matter is displaced the raindrop splash effect would occur with subsequent overland flow and erosion. In lower elevations, natural rehabilitation is slower than at higher elevations due to the dryer climate. Soil disturbance at low elevations would not entail as much vegetation disturbance per acre as would be in higher elevations; but, the disturbance would be just as permanent. Most of the soil in areas where construction would take place is easily eroded by wind and water. Water erosion is predominant at the higher elevations and wind is the stronger erosion force at lower elevations. It is pointed out that the lack of definitive soil surveys on the Range prevents any quantitative estimates of the amount of soil compaction or loss due to erosion. Overgrazing resulting from uncontrolled numbers of wild horses on the Wild Horse Range could result in increased soil losses and watershed degradation.

The proposed construction activities and underground nuclear testing would involve approximately 7,600 additional acres; however, 585 acres, shown in table 3-1, concern road repair throughout the North and South Range. About 25% of the mileage would require widening the road to a standard 14 foot width. Standardization of the road widths would impact 134 presently

undisturbed acres. This additional acreage is required to provide proper drainage to prevent increased erosion potential. The remaining road repair activities would be within the existing roadbed.

Construction of the EW sites and associated roads would require a total of 200 acres. Vegetation and some topsoil would be removed in order to construct a level concrete pad for the equipment. The EW Support Complex would require vegetation and topsoil removal from approximately four acres. The water well, to be constructed for the support complex, would require some vegetation removal and alteration of the soil profile in the immediate area of construction. Soil disturbance is expected to come from compaction due to heavy equipment and spread of subsurface materials on the ground surface. The acreage involved has been integrated into the four acres for the support complex. About 60 acres of soil would be impacted from installing five miles of above ground electrical lines to provide power to the support facility.

Ordnance deliveries by the Air Force and DOE would continue cratering and mixing the soils in the immediate vicinity of the targets. Continued impact to the target areas is not expected to significantly change the presently altered conditions.

Underground testing on Pahute Mesa by DOE is anticipated to disturb 150 acres per test if subsidence craters are formed. Based on past experience, it can be expected that not all tests on Pahute Mesa will form subsidence craters; however, subsidence material would change the soil profile in the surface zero area. If DOE continues the current rate of testing, about 6,750 acres of soil would be disturbed at Pahute Mesa. These impacts are of more concern to vegetation and consequently will be discussed later. More detailed analysis of soil impacts is provided in reference 3.

Presently the impacted acreage on the range is 0.41% of the total acreage. The proposed activity will increase this to 0.67%. Appropriate engineering design practices will be applied on the construction projects to minimize the potential impact to the watershed. Thus the cumulative impacts to the soil and watershed resources of the Nellis AF Range are not considered to be significant.

WATER RESOURCES

The Air Force activities on the Nellis AF Range are not expected to have any significant impact to surface (springs) water improvements, or subsurface waters.

In order to provide the water required for the support facility, a well would have to be installed. Capacity is expected to be approximately 31,000 gallons per day. Since the site

selection for the support complex and well have not yet been identified, it is difficult to project which subhydrographic region would be used for the water supply. Figure 2-5 shows the estimated perennial yield and storage for each groundwater basin on the Range. Based on data provided here the Gold Flats and Sarcobatus Flats hydrographic region could supply the required amount of water with minimum impacts. If the well is placed in the Cactus Flats hydrographic basin, a more pronounced impact would occur due to the limited perennial yield.

Underground nuclear explosions on Pahute Mesa have the potential to locally contaminate the groundwater system. Infiltration of surface water caught where subsidence craters are formed will be somewhat greater than normal because of the increased permeability of the broken rock. However, infiltration through the cavity itself will be slowed because of the explosion compacted glazed envelope surrounding the cavity and the low permeability of the rock beneath the cavity. Additionally, the contaminated water must flow through tuffaceous rocks which have a relatively high ion-exchange for radionuclides. Any water reaching the water table may carry dilute concentrations of radionuclides.

The DOE groundwater monitoring program for sites on, and adjacent to, the NTS show the gross beta activity to be about 10 pCi/l and a small amount of tritium (average of 15pCi/l) but no soluble decay products such as strontium-90 or cesium-137. The soluble isotopes have either been absorbed by the high ion-exchange capacity of the zeolitized tuffs or have such a slow migration velocity that they have not reached the sampling points.

The DOE (3), evaluated the potential for tritium contamination of the Ash Meadows water system from operations in Yucca Flats. When comparing the aquifer discharge rate and the 300 years required for the water to flow from Yucca Flat to Ash Meadows, it was determined that at least 420 billion curies of tritium would have to be injected in the aquifer under Yucca Flat in order to produce a concentration equal to the DOE standard of 1×10^6 pCi/l. "This amount, of course, is many orders of magnitude above all of the tritium associated with nuclear testing at the NTS (3)." If the same rationale is applied to the EPA tritium standard of 2×10^4 pCi/l, it would take about 9 billion curies per year to equal the standard in the Ash Meadows water system. Again, this is many times greater than the tritium associated with nuclear testing. DOE (3) reports it would take at least 1000 years for water on Pahute Mesa to leave government controlled land. Thus, it can be seen that an even greater amount of tritium would have to be injected in the groundwater below Pahute Mesa before the EPA standard would be exceeded.

The concentrations of other isotopes having longer half-lives will not be reduced as rapidly by radioactive decay; but, they will be slowed by sorptive processes and are not anticipated to pose a future hazard. The ion-exchange capacity of the alluvium and tuffs appear to be the best defense against transport of the very long-lived nuclides.

VEGETATION

Impacts associated with the proposed action include clearing of vegetation from the electronic warfare sites, maintenance complex construction area, and widening the roadways in various portions of the Range. Other construction activities which do not require actual blading of the soil surface would still result in some trampling and crushing of vegetation.

Table 1-6 shows the projected acreage for each construction project. The road repair project indicates 585 acres of virgin soils will be impacted. It is estimated that an 8 foot buffer zone on each side of the roads would receive some vegetation impact, that is, root damage, crushing or dust coated leaves (preventing respiration). It is estimated that the EW sites, support facility, and electric line will involve 200, 4, and 60 acres of vegetation impact, respectively, or a total of 849 acres of vegetation will be removed or altered due to Air Force construction.

It is projected that 93 acres of vegetation will be impacted on the Wild Horse Range from the above discussed road improvements and the location of new electronic warfare simulators. The net result of the proposed action would make an additional 234 acres of land available for natural revegetation on the Wild Horse Range because the Air Force plans to delete target facilities in sub-ranges 72 and 73. Since the proposed action would return more than twice the anticipated acreage to be impacted on the Wild Horse Range, there should be a long-term net gain in animal unit months for horses. Increased numbers of wild horses could lead to a significant decrease in vegetative conditions. Road construction on the South Range would impact about 140 acres of Southern Desert Shrub and 10 acres of barren land (see table 1-6).

The DOE operations on Pahute Mesa and Yucca Mountain (if DOE adopts the program) will disturb approximately 150 acres/shot and 2 acres per site, respectively. Site preparation activity for future shots at Pahute Mesa are scheduled to continue and may average three shots per year. At this rate, about 6,750 acres of soil, which support some vegetation, would be impacted. Impacts to vegetation would be root damage, crushing, dust coated leaves, and removal of plants during the construction and formation of the subsidence crater. There are no current projections on the number of underground burial sites DOE would require on Yucca Mountain.

A set of shipping container explosion tests, conducted on the TTR, have scattered some beryllium and depleted uranium in the test area. (Depleted uranium is uranium from which most of the u-235 isotope has been removed.) "The chief effects noted with animals and plants are attributed to the chemical toxicity of uranium rather than its radioactivity (9)." In dispersal of large pieces, plant toxicity may occur at soil concentrations near 50 parts per million near the roots and acute toxicity may occur at levels ten times this value. Beryllium is no paramount problem to plants unless present in high concentrations, which is not expected to occur at the TTR.

The explosion testing of shipping containers for radioactive waste material normally scatter large pieces of debris, consequently, "about 80 percent of the uranium and 7 percent of the beryllium are in large enough pieces to recover (9)." Soil samples collected after a total of 18 of the tests indicated that beryllium levels in the soil are less than the limit of detection of analytical analysis.

To assure protection and preservation of proposed endangered or threatened plant species, construction and operational activities would have to be conducted in areas free from those plants listed in table 2-5. Roads (11), in summary, has concluded that underground nuclear tests are not a hazard to the candidate endangered plant species except for galium hilendiae var. kingstonense. This plant is not in the Pahute Mesa area and, consequently, should not be impacted by DOE operations conducted in that area (See figure 2-5).

It is anticipated that continuing activities on the Range during the proposed withdrawal will remove or alter approximately 7,600 acres of vegetation. This is a small percentage of the total Range acreage and thus is not considered to be a significant impact.

ANIMALS

The primary impacts of the proposed Range renewal, and the associated construction activities, to wildlife populations and habitats would be the removal of vegetation. The ground cover represents wildlife food, nesting or fawning sites, and protection from the climatic conditions on the desert.

Figure 2-6 shows that the vegetal cover on the north Range is predominantly salt desert shrub and that on the portion of the South Range, where the Air Force is allowed ground activity is composed mainly of southern desert shrub. Table 2-6 shows the animal species which frequent these vegetal communities. Consequently, significant impact to these communities would impact the wildlife.

As described in the preceding vegetation section, a very small percentage of the habitat would be impacted due to proposed continued activities and construction projects. It is not expected that this loss of habitat will be significant to the entire Range but could affect localized areas. Animals or wildlife that frequent these locally affected areas would be forced to seek habitat in another location. If the habitat is at its carrying capacity, some of the dispersed animals could be lost due to population dynamics or their inability to adapt in the new location.

Since there would be increased aircraft activity and new electronic warfare sites, there would be an increased potential for electromagnetic radiation impacts.

USAF (1) provides a review of electromagnetic radiation by several authors. Although most authors were concerned with human exposures, some animal studies were reported. With respect to thermal effects, the bloodstream is important in distributing and dissipating body heat. It can be expected that regions of the body with a poorly developed vascular system, such as the eye would be especially sensitive to radiation. Exposure levels of 100 mW/cm^2 for one hour to 2450 MHz radiation has been shown to cause thermal coagulation of lens protein and cataract formation in rabbits. Experiments at 50 mW/cm^2 for one hour to 2450 MHz repeated daily, apparently do not cause discernible eye damage.

There is no electromagnetic radiation standard for wildlife; however, the American Conference of Governmental Industrial Hygienist recommend occupational exposures be limited to 10 mW/cm^2 for periods of six minutes or more. This level of control should prevent elevation of the body temperature above one degree centigrade. The standard provides a safety factor of about 10 for personnel, and in general, may provide a degree of protection for animals.

The Air Force has adopted the above standard and has determined the distance personnel must maintain from the main beam of the antennas in order to not exceed the 10 mW/cm^2 value. Review of the transmitters to be used show the safe-separation-distance to range from a few feet up to 407 feet.

Although the area around transmitters and antennas are posted at the 10 mW/cm^2 electromagnetic radiation level to protect personnel, no fences are installed to exclude wildlife because the antennas are elevated above ground level and cannot be operated in a negative tilt direction. This prevents wildlife on the ground from being exposed to the main beam.

The potential impact to wildlife is small and would be limited to flying birds which may pass through the main beam within a safe separation distance. Due to the width of the

electromagnetic radiation beam, birds would easily transit the area in a few seconds and should not be exposed for a time period sufficient to create a significant impact. Microwave radiation from these radars will be similar to existing military and civilian radar systems which have been operating continuously for many years without any noticeable ecological damage.

Impacts to wildlife from future underground nuclear testing has been shown by DOE (3) to be minor and are primarily associated with the loss of habitat.

Impacts due to noise and sonic booms are discussed in the Hazards and Safety section of this chapter.

ANTIQUITIES

The cultural resources on the Nellis AF Range could be damaged by construction activities or ordnance drops. To assure the resources are protected the Air Force has adopted an affirmative action policy to survey the Range and locate the historical and archaeological sites. When the surveys are completed the data will be available for the Nevada State Historic Preservation Officer to review and determine if any sites meet the criteria for nomination to the National Register for Historic Places.

Sites which meet the criteria for inclusion in the National Register for Historic Places will be provided the required protection.

VISUAL IMPACTS

There should be no significant change to the current level of visual impacts since construction and operational activities will be in the background (5-15 miles from the borders of the Range).

LAND USE

RECREATION

Impacts to the recreationist, and recreation resources, vary in degree and intensity; and, the effects of certain impacts may differ between individuals or groups.

Recreation on the Nellis AF Range has been prohibited for many years due to national security and recreationist safety. Renewal of the withdrawal would continue to close the land to general recreational activities. The annual bighorn sheep hunt would be continued in conjunction with game management objectives of FWS and the State of Nevada.

Continued foreclosure of recreation resources on the Nellis AF Range affects 6 percent of the public lands in Nevada and is considered not to be a significant impact. The Nevada Division of Parks has an agreement with the Air Force to allow them to inventory the Nellis AF Range for recreational potential and sites in order to complete their state wide survey.

LIVESTOCK GRAZING

Livestock grazing rights were purchased by the Air Force in 1956. Since this time, trespass grazing of domestic cattle has occurred. In November, 1977 BLM inventoried the North Range and counted 825 domestic cattle; however, they were removed in 1978.

To assist in preventing trespass grazing, BLM has installed approximately 150 miles of fence along the Northern border of the North Range. BLM and the Air Force consider this action is necessary to protect the wild horses, burros, mule deer, and antelope on the Range.

AGRICULTURE

Impact to potential agriculture land is considered to be minor. BLM (12) has identified Cactus Flats, Gold Flats, Kawich Valley, Emigrant Valley, and the lower lake of Three Lake Valley as having some agricultural potential. Although this potential exists, it is considered to be submarginal-to-marginal. Soil in the questioned area is fairly saline and water availability is low. Consequently, these areas are not listed by BLM as being valuable agricultural resource lands. More detailed analysis of these summarized conclusions is provided in reference 12. Additionally, the Soil Conservation Service (SCS) states they do not feel there are any prime or unique farmlands on the Range. As funds permit, they will make an official determination.

MINERAL RESOURCES

An extensive literature search and a review of core drilling data provided by the DOE has been conducted by BM and U.S.G.S. to evaluate the mineral potential on the Nellis AF Range.

Little or no mineral exploration, or related activity, has occurred in the withdrawn area for nearly a half century; however, Cornwall and Norberg (15) indicates geologic evidence and records of past mining activity support a premise that portions of the area could be a future source of selected mineral commodities to meet national requirements.

Cornwall and Norberg[15] suggests that mineral resources may be in the north end of the North Range, east of Goldfield around the Cactus and Kawich Ranges, and in the Oak Springs district (No. 17 on figure 2-9) at the north-east end of the NTS. Further

geological, geochemical, and geophysical investigations would be required to more accurately delineate the nature and extent of significant mineral resource occurrences.

The DOI and DOD are currently negotiating an interagency agreement on mineral survey requirements for military withdrawn lands. As soon as the survey policy is completed, the Nellis AF Range will be available for BLM to conduct more extensive investigations to document the mineral base on the Range. If these surveys show the Range contains a commodity vital to the national needs, the Range withdrawal may have to be modified and a mineral management plan developed among all interested parties.

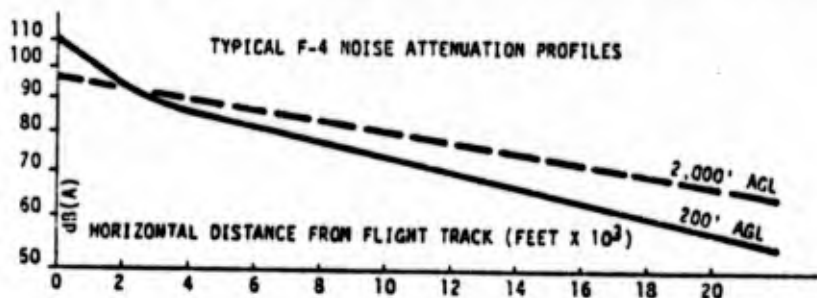
WILDERNESS

As required by the FLPMA of 1976, P.L 94-579, BLM is responsible for conducting Inventories/Evaluations on public lands under their jurisdictions to determine roadless areas and islands which may have wilderness characteristics and value. Conditions on the Nellis AF North Range are considered by BLM to pose a health and safety hazard. Evaluation of these conditions identified that criteria for roadless areas do not exist on the North Range. Therefore, the Range does not meet the minimum BLM requirements for a wilderness study area.

Although ground impact areas on the South Range are specifically outside of the areas of the wilderness consideration, the problem of aircraft overflight remains. Obviously, where low overflights occur, noise will have a detrimental effect on wilderness users and possibly on wildlife as well. As a result, some users may suffer an adverse impact to their wilderness experience. The proposed wilderness area on the DNWR has to be managed by FWS as a "de facto" wilderness in order to prevent activities which may alter the wilderness characteristics. FWS[8] states the proposed wilderness will not affect the Air Force's use of the Nellis AF Range for bombing and gunnery practice, nor will it affect overflight of aircraft. Therefore, it is concluded that continued military use of the area in accordance with the MOU will not prevent FWS from managing the area as a de facto wilderness. This does not include that portion of the wilderness proposal under the area which is not a part of this proposed action.

The MOU states aircraft operations, where practical, should be restricted to a minimum of 2,000 feet above ground level (AGL). This does not prohibit low level flight that are required to perform a special training mission. Depending on the location of a wilderness user or wildlife (specifically bighorn sheep) in respect to the aircraft flight track, the noise level may or may not have a detrimental effect. In some locations on the Range, flying more often at altitudes lower than 2,000 feet AGL could lessen noise impacts to bighorn sheep. It is well documented the primary habitat of desert bighorn sheep is the more rugged terrain of mountains. The graph below clearly shows the relationship of

noise (propagation) at horizontal distances for the noisiest aircraft using the Range. Directly beneath the flight track (zero horizontal distance) an F-4 aircraft flying at 200 feet AGL



would be 14 dB(A) louder than one at 2,000 feet AGL. At about 2,300 feet from the flight track the noise level would be about the same. Distances greater than 2,300 feet from the flight track will receive less noise from the aircraft flying at 200 feet AGL than one at 2,000 feet AGL. AT 20,000 feet from the flight track the aircraft flying at 200 feet AGL would be 10dB(A) quieter than one at 2,000 feet AGL.

In summary, low overflights produce more noise out to a distance of about 2,300 feet either side of the flight track, at greater distances low overflights create less of a noise impact. Due to the terrain on the Range, low level flights predominantly occur in the valleys, most of which vary from four to six miles wide, and thus produce less total noise impact than if all operations were entirely restricted to 2,000 feet AGL. However, if a wilderness seeker or wildlife are within 2,300 feet of the flight tract of a low level aircraft the chance for some type of disturbance increases. This is a continuing subject of discussion between the FWS and the Air Force.

LAND USE PLANS, CONTROLS, AND CONSTRAINTS

The MOUs between the various use agencies provide necessary controls to guard against conflicts of land use. These agreements have generally been effective in the past; MOU's will be continued or renegotiated as necessary if the withdrawal is renewed.

Construction activities and future operations will be performed commensurate with all applicable laws concerning land use.

SOCIO-ECONOMIC CONDITIONS

POPULATION

It is anticipated that the Nellis AF Range personnel work force will increase by about 550 persons by fiscal year 1983 once the EW sites and support facilities are completed. Personnel assigned to the Range will be on temporary duty status, living in transient

quarters on the Range during the week and returning to the Nellis AFB/Las Vegas area for the weekends. Based on an average family size of 3.5, this would add 1,925 additional people to the expected population by 1983. Some induced population gains in the region of influence may result from implementation of the proposed action. The areas multiplier for indirect employment (21) indicates 330 new jobs would be created. Many of these jobs may be filled by unemployed people in the area; however, under a worst case condition, these jobs would attract people from outside the region of influence. In this case, another 1150 people (including the average family size of 3.5) would be added to the expected population.

It is anticipated the population increase would occur mainly in Clark County, in the Las Vegas-Henderson area (See table 3-4).

Currently, there are about 70 military personnel living in Beatty and 177 in Tonopah on a temporary duty status. Personnel in Beatty rent homes, trailers, and apartments for housing accommodations and thus are somewhat integrated into the town economy. It is doubtful that they provide the same economic stimulus as a full time resident since most of their shopping is done in the facilities at Nellis AFB. However, if they were completely dependent on the local resources, the proposed action could reduce the town population by 217 people if they did not accept other local employment or join the unemployment ranks.

Personnel in Tonopah live in motels contracted by the Air Force and thus, are considered a static type tourist in respect to the economic stimulus they provide to the community. Since the Tonopah Convention Center predicts the motel occupancy rate will not decline, if the Air Force moves onto the Range, it is concluded there would not be any decrease in employment and no decline in the population.

EMPLOYMENT

The proposed action would add about 550 military personnel by 1983. Another 330 jobs would be created through indirect employment. It is anticipated these indirect jobs would be created in the Las Vegas area.

Since the military personnel living in Beatty would move onto the Range, into military furnished dormitories, employment would probably decrease. Under worst conditions, it is anticipated 42 jobs would be lost in Beatty. No decrease is projected for Tonopah. These jobs would come from the trade and services sector. As can be seen in Table 2-10D, Nye County services sector of the industrial employment for 1970 and 1974 declined from 5,090 to 3,510. Additional declines in this area could have a significant impact on the county and even more specific in Beatty.

TABLE 3-4

ESTIMATED POPULATION BY COUNTY PLUS
GROWTH FROM NELLIS AF RANGE PERSONNEL

COUNTY	ESTIMATED POPULATION (1) 1980	ADDITIONAL (2) POPULATION	TOTAL
Clark	404,533	3075	407,608
Esmeralda	963	-	963
Lincoln	2,910	-	2,910
Nye	7,330	-	7,330
4 - County Total	415,736	3075	418,811

SOURCE: (1) Bureau of Business and Economic Research, University of Nevada/Reno, Revised March 1977.

(2) Estimated by Nellis AFB.

1970 Census of Population Detailed Characteristics - Nevada
U.S.D.C., Bureau of the Census (Average Family Size 3.48).

The overall impact on employment would be positive for the study area, with negative impacts at Beatty. Relief is available to impacted communities and individuals that may be affected by changes of defense programs. Assistance is provided to help reduce dependence on defense activities and to make necessary adjustments when changes cause serious impacts.

Request for economic adjustment planning and project assistance may be addressed to: Chairman, Economic Adjustment Committee, Office of the Secretary of Defense, Attention: Director of Adjustment, Room 3E 772, Pentagon, Washington, D.C., 20301.

With the assistance available to Beatty, projects and programs can be developed prior to the decline in employment related directed or indirectly to the military activities and prevent a significant long term impact.

INCOME AND EXPENDITURES

It is anticipated that the proposed action will increase the area income by \$6.9 million dollars. The operations and maintenance budget for Nellis AFB and the Range will probably remain close to the fiscal year 1978 figures, \$29.8 and \$32.5 million, respectively. Therefore, the proposed action would continue to provide some stimulus to the regional economy.

Income and expenditures at Tonopah would be reduced by \$702,676 per year (however, this is anticipated to be off-set by increased accommodations for tourists), and \$459,118 per year at Beatty.

On a regional basis, the proposed action has positive benefits; however, in Beatty, minor impacts may be experienced. Again, relief is available through the Economic Adjustment Committee with DOD. Therefore, there should not be significant impacts to the community.

GOVERNMENT FINANCE AND TAXATION

No significant changes are anticipated in the finance and taxation programs in the affected area.

HOUSING

DOI reported the median growth population for Las Vegas in 1985 and 2000 to be about 520,000 and 750,000, respectively. It is anticipated that about 118,500 family units will have to be constructed to support the projected population growth by the year 2000. [20]

About 880 units will be required in the Las Vegas area to house the military personnel and indirect civilian population growth as a result of this action. Housing surveys conducted by Nellis AFB shown housing is adequate in the area to support the action; however, it is often expensive for the lower grade airmen.

In 1970 Nye County had a deficit of 313 housing units (18). If this condition existed today, removal of military personnel from Beatty would free some of the housing assets and make them available for other residents in the community.

If the Air Force did not elect to construct dormitories on the Range, the additional 550 personnel would create a significant impact on the local housing market in Beatty and would tie-up most of the motel units in Tonopah. Comparing the current cost to support 247 military personnel in the Beatty-Tonopah area to the projected 1983 manning of about 800, the Air Force will save a considerable sum by providing the dormitories. Based on current dollars and cost of support, the Air Force would spend about \$3.2 million per year during and after 1983. The two dormitories are projected to cost \$15.7 million. Although the cost to maintain and operate these dormitories has not been projected, it is considered to be small in respect to the current cost flowing into Beatty and Tonopah. It is possible the facilities will pay for themselves in 6 to 8 years. The ultimate savings to the tax payers by building the dorms is considered to be cost effective.

Within the scope of this analysis, it is not possible to determine how many of the local residents of Beatty would move into the 45 + vacated units; however, in 1970 about 19 percent of the housing lacked some type of plumbing facility. If the cost to rent these facilities were reduced to within the economic means of the potential renter, it is possible only a few of the trailers would remain vacant.

HEALTH FACILITIES

Emergency first-aid services would be provided in each of the dormitories (at TTR and Tolicha Peak). For more extensive care patients would be moved to Nye General Hospital until they were capable of being transferred back to Nellis AFB. Depending upon the severity of the condition, the patient may be airlifted directly to the hospital at Nellis AFB. These arrangements have been coordinated with the administration of Nye General and no significant problems are anticipated.

SOCIAL ATTITUDES, EXPECTATIONS, AND LIFE STYLE

Continued withdrawal of the Nellis AF Range is not expected to materially change the attitudes and expectations of the general populace in the study area. There will continue to be small groups and individuals that want access to the Range land for

various reasons. The Air Force will, as in the past, continue to evaluate each request in respect to participant's safety and national security.

Economic stability is provided by the various governmental agencies which are located within the study area. The overall Air Force contribution to the stability is considered to be substantial by many civic leaders. As long as this condition exists, it is felt the general attitude will be favorable to continued withdrawal.

INFRASTRUCTURES

The Federal highway systems are more than adequate to meet the Range transportation requirements. Future use of the road network should not significantly change from the current use rate; therefore, impacts should be minimum.

Electrical requirement for the electronic warfare support facility is expected to be approximately 312,000 KWH per year. Power to the facility will come from the Sierra Pacific Power Company. Required service is within approximately five miles of the proposed facility site; consequently, depending on where the facility will be located, additional electrical lines will have to be installed. Impacts of the line installation have been innumerable in previous sections.

Coordination with Sierra Pacific indicates the additional demand of the support facility is not great and should not be a significant impact.

Solid waste from the support complex is anticipated to be 25 tons per year. The haul distance down to Indian Springs will probably be economically unfeasible. Therefore, a solid waste landfill would have to be installed. Design and operation of the landfill to the Guidelines for Land Disposal of Solid Waste (40 CFR 241) and state requirements should minimize the environmental impacts.

HAZARDS AND SAFETY

Supersonic activity is primarily associated with the Nellis air traffic control assigned airspace areas. Supersonic aircraft operations over the Nellis AF Range are expected to continue with a slight expansion. Air Combat Maneuvering (ACM) missions are expected to generate some sonic boom overpressures up to 5 lb/ft² which may extend in width on the ground to 30 to 35 miles at the boom cut-off point. Overpressures on the ground at the cut-off point may be between 0.6 and 1.2 lb/ft² depending on the type aircraft and speed. Previous experience has shown the majority of sonic booms, associated with ACM activity, produce a boom area of about one square mile.

The 1981-85 utilization of the ACM airspace is projected to be about 1,000 sorties per year. ACM sorties peaked at 1840 in 1977, declined to 860 in 1978, and 815 in 1979. During 1980, it is anticipated there will be about 950 ACM sorties. Therefore, the gradual increase in ACM sorties since 1979 may result in an increase of one to two sonic booms a day that could impact at ground level. This increase, however, would be less than that experienced during 1977.

The land area impacted is on the south Range and Desert National Wildlife Range. Much of this area is restricted from public use; thus, human exposure would be primarily limited to Air Force and FWS personnel assigned for range management. Outdoor recreationists adjacent to the range could be startled by the sonic booms; however, it is difficult to assess how quickly their reaction would turn from passing interest to irritation upon continued exposure.

Physiological and behavioral responses of humans have been extensively studied. Direct physiological effects have been reported at 95 lb/ft²; however, booms in the range of 20 to 144 lb/ft² have been experienced without injury. Effects such as temporary hearing shift may occur in this range. Levels of overpressure in this range would only be generated from aircraft in low level supersonic flight. Flights of this nature are restricted over the Desert National Wildlife Range.

Wildlife exposure to sonic booms on the Range is a subject that has been evaluated by many authors; but, the studies are mainly centered on captive rather than inhabitat evaluations. Generally, the most delicate and sensitive behavior of animals is that associated with reproduction. Unfortunately, the data does not quantitatively relate impacts of sonic booms to the success of reproduction. For wild animals, only descriptive accounts of individuals in the breeding population have been offered.

The limited data available does not show that the behavior of big game animals has been altered by sonic booms or simulated sonic booms in any appreciable way; although they may show momentary concern. [22]

"Desert Bighorn Sheep have been observed to offer no reaction to single sonic booms. Multiple sonic booms repeated several times a day with increasing frequency might possibly cause mule deer to become edgy and move around more; but, such activities may or may not influence or change breeding behavior activities [1]." There are no published reports covering wild horses and burros reaction to sonic boom or noise on the Nellis AF Range, however, interviews with aircrews that frequently fly over the Range indicate reactions vary from momentary concern too short burst or stampede for a short distance.

USAF[1] also discusses aircraft noise impacts to wildlife and cites many references that have evaluated animal responses to noise stimulus in various frequency ranges. It was concluded that the data on animal responses to noise are insufficient to enable accurate deductions of potential impacts arising from range operations. There is particular uncertainty regarding the effects that might arise from long-term protracted exposure.

Supersonic type aircraft have been using the Nellis AF Range since 1955, thus, there is a 25 year history of sonic boom exposure to the animal population in the range area. If response mechanisms facilitate accommodations to noise, as has been briefly alluded to in the various references cited, then it is possible that adaptation and accommodation has to some extent tempered the impacts of noise. [1]

Little in the way of adverse impacts from sonic booms and general aircraft noise have been noted on the Range. FWS records show the bighorn sheep population on the Range has not changed much since 1947, averaging about 1500 sheep on DNWR with a density ranging from 1.3 to 3.7 sheep per square mile. If the most sensitive index of impact is reproduction, then it can be concluded that continued Air Force activity would have little impact on the bighorn sheep. Since the wild horse and burro populations on the North Range have grown in the past few years, it is also concluded that continued activities would not threaten their existence on the Range.

The potential safety hazard from unexploded ordnance precludes public access on the Range. The impacts to recreationists and others who want access to the Range have been present for many years. Withdrawal renewal would continue to restrict access to the Range. No attempt to remove subsurface ordnance, except in the area of existing targets, is anticipated. The environmental consequences of trying to ordnance-free the entire Range is considered to far outweigh that of restricting access.

Impact of future underground nuclear explosions on Pahute Mesa has the potential to create ground motion and structural response. The likelihood of triggering an earthquake is very remote; but, damage to structures is of concern to DOE. An underground nuclear detonation will invariably produce some detectable level of ground motion. After many years (since 1962) of monitoring and analyzing ground motion data, from a large number of underground nuclear explosions, empirical equations have been developed which define the important characteristics of the ground motion and the dynamic response of structures to that motion. The resulting equations are used to predict, with reasonable accuracy, the expected ground motion from planned underground nuclear tests and the effects that motion will have upon structures. The predictions are stated in terms of the peak

amplitudes of acceleration, velocity, and displacement, which quantitatively describe the relative signal strength at the ground stations of interest.

Many tests conducted as part of the underground nuclear test program, are by nature experimental so that the energy yield is not precisely known beforehand. However, a maximum credible yield can be calculated, based upon the best performance, which can reasonably be expected from the device components. Predictions of ground motion effects from any nuclear explosion will be made on the basis of this maximum credible yield. This introduces an element of conservatism into the predictions.

The successful application of the prediction techniques utilized over the years and the broad data base upon which these prediction techniques were developed give rise to a high degree of confidence that future underground nuclear testing, in the range of yields discussed in [3] will not produce ground motion significantly different from past experience. In addition, it is not expected that the response of structures to that motion will cause structural damage to existing buildings offsite. Some motion will cause structural damage to existing buildings offsite. Some uncertainty relates to the future high-rise buildings projected for Las Vegas. New and innovative design concepts and building materials are being utilized in an effort to maintain an acceptable cost level for new buildings.

There is no evidence of damage to offsite mines that could be attributed to ground motion produced by underground nuclear explosions. All mines within 30 miles of the test site are periodically examined and photographically documented by experienced mining engineers. At the levels of motion expected from future test activities, damage to offsite mines is not expected to occur.

Previous mining activity may have left several verticle open mine shafts on the range. These shafts could present a safety hazard to range personnel or people conducting surveys.

Target facilities such as bombing circles, simulated runways and airfields are constructed by blading or scribing the target on the ground. This method of constructions, while done for economic reasons, helps to reduce the fire potential from using live ordnance.

Although no data is available to estimate future vegetation loss from range fires caused by Air Force activities, it is anticipated the losses will be no more significant than what has occurred over the past several years. The Air Force considers the majority of range fires are caused by natural means.

CHAPTER IV

MITIGATING MEASURES

Continued withdrawal of the Nellis AF Range, coupled with the anticipated construction and increased utilization, would precipitate some environmental impacts that can be mitigated. Not all impacts will be completely mitigated; however, the following committed measures should minimize the adverse condition.

AIR FORCE COMMITTED MEASURES

The road improvement projects will include an oil/chip and gravel surface. This will reduce fugitive dust emissions from vehicular traffic on these roads by about 50 percent. Indiscriminate driving across the open desert floor will continue to be prohibited. Construction activities will utilize (where possible) appropriate engineering practices to limit generation of fugitive dust.

The Air Force has committed to an aircraft engine emission reduction program, "...if engineering and cost studies indicate feasibility and environmental impact studies indicate that such modification/retrofit is warranted [2]." For engines in substantial production after 1 January 1979, carbon monoxide and hydrocarbon levels are to be below levels which result in an idle combustion efficiency of 99 percent for engines with an idle pressure-ratio above 3:1, and a combustion efficiency of 98 percent for engines with an idle pressure-ratio below or equal to 3:1 [2]."

"For engines in substantial production after 1 January 1981, carbon monoxide and hydrocarbon levels are to be below levels which result in an idle combustion efficiency of 99.5 percent for engines with an idle pressure-ratio above 3:1, and a combustion efficiency of 99 percent for engines with an idle pressure-ratio below or equal to 3:1 [2]."

"For engines in substantial production after 1 January 1979, nitrogen oxide levels are to be less than 75 percent of the present or uncontrolled levels, and after 1 January 1981, nitrogen oxide levels are to be less than 50 percent of the present or uncontrolled level...[2]." "For engines in substantial production after 1 January 1979, emission levels of smoke are to be below the invisibility threshold...[2]."

In addition to the above, the Air Force is currently replacing older aircraft with more modern F-15, F-16, and A-10s. The newer aircraft are quieter and, except for nitrogen oxides, emit fewer pollutants than the F-4, F-100, and F-104 aircraft. These two commitments will result in less air pollution and noise impact on the environment.

The Air Force is committed to a cultural resource survey of the Nellis AF Range. This survey will identify the cultural resources and will provide a sensitivity map from which future survey requirements may be based. Until this survey is completed identifying sensitive areas where new construction or land disturbing activities would be conducted, the Air Force will have a cultural resource survey made to identify the presence and significance of any cultural resources. If the activities cannot be relocated, appropriate consultation and mitigating measures will be accomplished in accordance with E.O. 11593.

Sites will also be surveyed for the presence of threatened or endangered flora and fauna prior to activities that may affect these or their habitat. If the survey reveals the presence of threatened or endangered species of flora, fauna, or habitat that may be affected by the Air Force activity, Section 7 Consultation as required by the Endangered Species Act, will be initiated with the FWS. For Nevada protected plants not on the FWS proposed threatened or endangered list, coordination will be initiated with the appropriate state agency as a part of the Five Party Cooperative Agreement.

Future projects and operations on the Range will be reviewed in respect to past and current use plans for the area. Where scenarios will allow, existing use areas will be utilized to minimize the amount of acreage that is impacted by Air Force operations. Siting of facilities and operations on the Range will be accomplished in the most environmentally sound manner. Engineering considerations for roads and facilities must include protection of the topography from erosion forces. Drainage ditches and storm culverts must be designed on the ten-year flood criteria, one hour average rainfall.

The Air Force commits to continuing relations developed through the MOUs with the various agencies responsible for activities and range management. These MOUs provide the using agencies an opportunity to share in management programs to protect the environment of the Range. Efforts will be made to establish and maintain reasonable numbers of wild horses within the wild horse range. Upon determination that the Nellis Air Force Range is to be relinquished by the Air Force, decontamination will be in accordance with the requirements of Air Force Manual 50-46. FWS and Air Force will discuss possible ways through the MOU to begin monitoring and evaluating present and long-term effects of noise on bighorn sheep and other wildlife.

All appropriate regulations concerning land use will be adhered to by the Air Force. Permits will be obtained for activities requiring them.

The problem of open verticle mine shafts will be reviewed by members of the Five Party Cooperative Agreement to determine who will install fences.

DEPARTMENT OF ENERGY

DOE will continue to use seismic instruments to document ground and building motion response to verify that actual motions are within the range of predicted response. Most of the documentation will be concentrated in Las Vegas.

Although for high-yield test, recordings may be taken at other locations within and adjacent to the state.

Mines within 30 miles of the test site will continue to be examined and photographically documented as appropriate for specific tests.

DOE will continue to study groundwater movement in the area and evaluate waterborne radionuclide concentrations.

When possible, DOE will avoid all areas where threatened or endangered species and cultural sites have been identified. If an area cannot be avoided, coordination will be initiated as required by law.

DEPARTMENT OF DEFENSE COMMITTED MEASURES

Where community officials feel a potential community impact is possible, as a result of a change in a defense program, a request for assistance can be made to the President's Economic Adjustment Committee. Through this committee, assistance is provided to help reduce dependency on defense activities and to make necessary adjustments when program changes cause serious impacts.

Request for economic adjustment planning and project assistance may be addressed to:

Chairman, Economic Adjustment
Committee
Office of the Secretary of Defense
Attention: Director of Adjustment
Room 3E 772, Pentagon
Washington, D.C. 20301

CHAPTER V

ADVERSE IMPACTS THAT CANNOT BE AVOIDED SHOULD THE PROPOSAL BE IMPLEMENTED

INTRODUCTION

The following is a summary of the adverse impacts that will remain if the proposal is implemented and the effective mitigating measures discussed in Chapter IV are applied. The relative values and significance placed upon these impacts, and the degree of what is affected, is discussed.

AIR QUALITY

Dust production (fugitive dust), particulate, and gaseous emissions due to exploding ordnance and aircraft emissions would be sources of potential adverse impact to air quality. Construction caused dust generation would be localized and short-term; however, of more concern is the fugitive dust caused by wind and vehicular traffic after construction is completed. The road repair project would provide a significant reduction in fugitive dust over current conditions. Sound construction engineering practices will be utilized during construction to limit dust generation.

Considering the aircraft modernization program and pollutant emission reduction goals identified in Chapter IV, there will still be emission of pollutants to the atmosphere. The cumulative impact of these sources on air quality should not be significant.

There will be continued release of radioactive noble gases and limited resuspension of radioactive contaminated dust to the atmosphere.

TOPOGRAPHY

The desert terrain in the immediate area of new construction projects and underground nuclear testing would be altered. The magnitude (acres) of this impact would be small in comparison to the total acreage of the Range.

SOILS AND WATERSHED

Approximately 7,600 acres of land area would be impacted over and above the current conditions. These impacts would include both surface and subsurface soil disturbance.

The unavoidable impacts can be categorized as follows: Sheet and rill erosion will result from any soil disturbance due to soil compaction, which will reduce infiltration rates. When organic matter is displaced, the rain drop splash effect would occur with

subsequent flow and erosion. Soil profiles which have developed congruently with natural vegetation would be interrupted for several decades. Disturbed soils will be subject to increased wind erosion due to the vegetation being removed.

An undetermined impact to soils and watershed could occur due to the increased number of wild horses on the Wild Horse Range. This impact will continue until action is taken to reduce the number of horses to the carrying capacity.

Cummulatively, 19,788 acres (0.67 percent) of topography, soils, and watershed would be impacted by the proposed withdrawal. Of this total 12,188 acres (0.41 percent) have been impacted by existing conditions and facilities. New construction and operational requirements would impact an additional 7,600 acres (0.26 percent).

WATER RESOURCES

There would be minimum impact from the Air Force activities to the water resources on the Range. Surface drainage patterns will be considered in the design and construction activities for the various projects.

Approximately 31,000 gallons of water per day would be required to support the maintenance complex on the North Range.

Underground nuclear explosions conducted by DOE on Pahute Mesa, have the potential to cause local contamination of the groundwater systems. Future tests should not materially differ from past tests in respect to the types of radionuclides. Dispersion, dilution, natural decay, and soil ion exchange are natural mechanisms which reduce radionuclide concentrations. Studies conducted by DOE have shown underground nuclear testing has no detectable impact on the availability of water from the regional ground water systems or its potability and safety at points of use both on and off the Nellis AF Range and NTS.

VEGETATION

Unavoidable disturbance to vegetation would occur as a result of the proposed action being implemented. The areas most affected will be those in the salt desert shrub type, as this environment is least receptive to natural revegetation or re-seeding. Regrowth in these areas can take several decades, and in some circumstances where regrowth does occur, salt desert is usually replaced by invader weed species. Some impact will be experienced in the northern desert shrub and pinyon-juniper communities on Pahute Mesa.

An underdetermined impact to soils and watershed could occur due to the increased number of wild horses on the Wild Horse Range. This impact will continue until action is taken to reduce the number of horses to the carrying capacity.

When comparing the acreage of vegetation which would be impacted to the total acreage of the Range and more importantly to the acreage of the respective vegetative community, the impact is not considered significant.

DOE has shown that impacts to vegetation exposed to beryllium and uranium is not significant because the plant uptake of these contaminants is considerably below the toxic level. (9)

Mitigating measures committed to by the Air Force and DOE would provide protection to proposed endangered and threatened plant species on the Nellis AF Range.

ANIMALS

There will be approximately 7,600 additional acres of vegetative habitat impacted if the proposal is implemented. Animals which frequent these vegetative communities would be forced to seek habitat in another location on the Range. If the habitat is at carrying capacity, some of the dispersing animals may be lost due to the population dynamics or their inability to find or adapt to a new location.

An undetermined impact could occur to animals on the North Range due to the increased number of wild horses and competition among the species for the available forage and could result in some species population reductions.

Impact to animals from electromagnetic radiation, generated from the electronic warfare equipment, is considered to be insignificant due to the probability of very low exposure time within the main beam at hazardous distances.

CULTURAL VALUES

If the mitigating measures as outlined in Chapter IV are followed, limited adverse impact on identified sources is expected. Depending on the specific location of construction activities, there may be some adverse impacts to sources which have not been previously located by cultural reconnaissance.

VISUAL

Minor impacts would occur to the visual resources on the Range. Construction activities would be located at sites which will be shielded from general public view. The ordnance hazard/safety zones are such that target complexes are well inside the range boundary and are difficult to observe.

LAND USE

RECREATION

Due to public safety and national security, recreation is restricted on the Nellis AF Range. If the land were not used as a bombing range, the remoteness which could be provided would be of high value to the wilderness seeking recreationist. For the general public the recreational advantages of the Range are not significant when compared to the assets provided in the region.

AGRICULTURE

BLM indicates the lands of the Nellis AF Range as submarginal to marginal for its agricultural potential. This loss, although relatively small, is an unmitigated impact. The soil profile, lack of ample rainfall, and cost of irrigation are factors which would present problems if the land were used for farming.

MINERAL RESOURCES

There may be some potential for mining several minerals on the Nellis AF Range. As the national mineral resource reserves are depleted, areas that may have some potential will become more important. Continued withdrawal of the Nellis AF Range precludes mining activity but does not prevent more intensive mineral surveys. If studies determine the withdrawn land contains minerals of vital importance to the economic stability of the Nation, the withdrawal may have to be modified.

WILDERNESS

Low level flights over the proposed wilderness area produce noise levels of a magnitude which reduce the wilderness experience of the users.

SOCIO-ECONOMIC CONDITIONS

The proposed action would add 550 more military personnel in the area. Associated with that increase would be a total area population increase of 3075. At Beatty, under a worst case type evaluation, the population could decrease by 217, approximately 42 jobs could be lost, direct expenditures would decrease by \$459,118, and 45 homes units could become vacant.

HAZARDS AND SAFETY

The increase of sonic booms is an impact that cannot be mitigated if the Air Force conducts the type training required to maintain combat readiness. Although overpressures on the ground at the boom cut-off-point are significantly below reported levels for direct physiological effects, studies on human and animal response to the anticipated overpressure levels are inconclusive.

The safety health hazard of unexploded ordnance and radioactivity cannot be mitigated within sound environmental means. To assure complete ordnance removal, the subsurface would need to be evaluated to a depth of several feet. This would require denuding vegetation and altering some topographic features.

Underground nuclear explosions conducted on Pahute Mesa would continue to produce ground motion. However, DOE has committed to an extensive ongoing research and evaluation program to forecast potential impacts. DOE will continue to monitor facilities (with seismic instrumentation) to verify actual motions are within the range which predicted.

The potential for a range fire cannot be completely mitigated. Target construction for range management requirements incorporate techniques to reduce the potential for a range fire, but no mitigating measure is available for preventing fires from aircraft crashes. The Air Force and other fire suppression officials try to limit the acreage of vegetation lost by responding to the fire as soon as possible.

CHAPTER VI

RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

This chapter discusses the productivity of the environment which would be affected by construction and operational activities of the Air Force and DOE on the Nellis AF Range.

In this context "short-term" refers to the life of the proposed withdrawal, 15 years plus 10 years optional. For the "long-term" aspect of maintenance and enhancement of the environment, the imprint of the Air Force's activity will be noticeable for many years, possibly hundreds of years, after operational activity is terminated on the Range.

Some of the short-term effects that could result from implementation of the proposal include fugitive dust generation and increased air pollution emissions from the operational and support activities of the Air Force and DOE. The short-term effects would be a minor impact to the local air quality and, thus, are not considered to be a significant impact.

Noise and sonic booms created by aircraft activity could be primarily a short-term effect; however, due to unknown physiological responses from repeated exposure, there may be some potential for long-term effects in the various animal species on the Range.

Long-term effects which would be noticeable for many years after operational activities ceased on the Range include minor topographic changes, soil loss and disruption through erosion and operational and/or construction activities. There would be a direct impact to 7,600 additional acres of vegetation with some adverse impact to wildlife due to the loss of habitat. Construction scars would be noticeable for many years.

Depending on the specific location of future construction activities, there could be long-term effects to historical and archaeological material which has not been previously located by cultural reconnaissance.

Radioactive contaminated sites, unexploded ordnance, and ordnance burial sites represent long-term effects which must be considered in future land use planning decisions. These factors also contribute to a degradation of the potential recreational resource if the land were not used as a bombing and gunnery range. These conditions also make any ground use a potential safety hazard.

In summary, the baseline site condition has been established for many years. The proposed action would impose approximately 7,600 additional acres to vegetation and soil impacts. Currently 0.41 percent of the total Range acreage has been impacted by construction and operational activity. The proposed action to continue using the Range would increase this value to 0.67 percent.

CHAPTER VII

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The land involved in this proposed action has been committed to use as a bombing and gunnery range since the early 1940s. Inherent with this commitment, operations have been conducted which make most of the land a safety hazard and thus requires restricting general public use.

Unexploded ordnance may be found in any area of the Range and there are locations where radioactive contamination could present a health and safety hazard. Although these conditions exist, certain non-military activities, such as those conducted by DOE, FWS and BLM, are compatible and thus do not cause a total irreversible and irretrievable commitment of the land resources. In respect to general public use, the land should be considered irreversibly committed.

Proposed construction and operational activities would impact approximately 7,600 additional acres of vegetation, soil, and gravel loss. Table 3-1 shows the amount of fugitive dust that would be generated during construction activities. In addition to this, soil loss would also come from wind and water erosion. These construction and, in some respect, operational activities will change the ecological interrelationships by altering the habitats through soil and vegetation disturbances. These localized impacts on ecological interrelationships may alter the character of the entire ecosystem, and will last as long as the effects of soil and vegetation disturbances persist. Topographic features which would be altered by construction and underground nuclear testing would be an irreversible commitment.

Construction materials, nuclear source materials, fuel, and manpower efforts would be irretrievably committed. Water requirements for the construction and operation of the Range would be irretrievably committed.

Any undiscovered archaeological sites accidentally disrupted during construction may be irreversibly damaged and could lose much or all of their archaeological and historical value.

CHAPTER VIII

ALTERNATIVES TO THE PROPOSED ACTION

NO ACTION

Under no action alternative, the Air Force would not seek renewal of the Nellis AF Range withdrawal. This action would precipitate operation impacts on the Nellis AFB mission as well as the mission of other units which depend on the Range for their training activity.

Mission Impacts:

Provided the airspace above the Range remains a restrictive or designated special use airspace, all Range activity except certain air training would be terminated.

Air-to-air training which required use of live ordnance would be terminated. The Air Force would have to relocate all air-to-ground operations and support requirements to another base which has the required range facilities or utilize other Ranges. The latter option would require aircrews to fly to another Range to obtain their training. The aircrews would have to either use in transit air refueling or temporary duty assignment to the base operating the Range. Based on the Range utilization figures provided in table 1-3, about 85 percent of the sorties would have to be flown on other ranges.

Ranges in the area which could provide the type of training conducted at the Nellis AF Range include the Hill-Wendover-Dugway Range Complex (west of Salt Lake City, Utah), China Lake (southwest of Nellis AFB and located in California), Fallon (east of Reno, Nevada), and Luke AF Range (southwest of Phoenix, Arizona). The Cuddeback Range, operated by George AFB in California, is not considered capable of supporting the Nellis AFB mission because the Range is only a two by six (2X6) mile area and currently is under use restrictions due to its small size.

Of the Ranges listed above, the current utilization of any one is too large to accept all air-to-ground activity conducted at the Nellis AF Range. It may be possible to split the activity between the ranges; 25 percent to China Lake and Fallon, 45 percent to Hill-Wendover-Dugway, and 30 percent to the Luke AF Range. Use of the Luke AF Range would require the aircrews to utilize temporary tour of duty assignments at Luke AFB in order to obtain their range training.

The no action alternative would also impact DOE operations at the TTR and on Pahute Mesa. DOE would be forced to either seek a withdrawal of these two areas or move the operations to another location.

Environmental Impacts:

The environmental impacts associated with this alternative (no action), assuming DOE operations at TTR and Pahute Mesa would move to a new location, are discussed below.

It is projected that about 700 personnel assigned to Nellis AFB (including the people managing the Nellis AF Range) would no longer be needed at Nellis AFB and consequently would be relocated to other military installations. The operational cost associated with splitting the Nellis AF Range activity between other Ranges is anticipated to be \$390,000 per year for temporary duty assignments, \$19.1 million per year for additional fuel requirements, and between one to two million dollars to relocate the target facilities and equipment.

Air pollution emission from ground vehicles, construction, and underground nuclear testing on the Range would be eliminated. Aircraft emissions, and their impact on the Las Vegas Air Quality Maintenance Area, would be reduced if aircrews were assigned to air bases elsewhere. Since aircraft emissions are emitted at some altitude, in most cases above the atmospheric mixing layer, the resultant decrease would not be expected to significantly improve regional ambient air quality levels.

The projected increase of about 0.26 percent impact to soils and vegetation from construction and operational activity would not occur. The 0.41 percent of the Range acreage which has been impacted from previous use would be allowed to return to natural conditions after the targets, unexploded ordnance, and equipment were removed from the Range. A Range clearance survey would have to be conducted to remove unexploded ordnance from the surface. Unexploded subsurface ordnance and the radioactive contaminated sites would remain on the land since the impacts associated with removing all hazards would be environmentally unacceptable and also cost prohibitive. It is possible that because of the unexploded ordnance and radioactive contaminated sites, the land could not be returned to the public for unrestricted use.

Potential impacts to wildlife from loss of vegetation would be eliminated. Allowing the area to revert back to natural conditions with greatly reduced noise would be a positive benefit to the area. If air-to-air training were still conducted over the South Range the proposed wilderness area (on the Range and the Desert National Wildlife Range) would continue to have about the same level of noise impact as previously documented in this statement.

The impact of the no action alternative on the FWS and BLM management programs would be mostly positive with some negative impact. The management programs are designed to enhance and protect the wildlife and their habitat. Additional protection is provided by the military by restricting public access to the range but also restricts FWS management opportunities. If the withdrawal were terminated, it is possible dichorn sheep and other wildlife could be impacted by poachers.

If the withdrawal were not renewed, BLM and FWS would have unrestricted access to their management areas and could increase their management activities. Coordination with both BLM and FWS indicate their current programs are adequate on those lands withdrawn by the Air Force; however, from a long range standpoint, future legislation may require expansion of the programs.

The potential impact to water would remain as documented herein, except the limited amount for the support facilities would not be required. Underground nuclear testing has deposited radioactive material both above and below the water table. The half-life of the isotopes run into several hundred years; therefore, the potential for impact will remain for an indefinite period of time. Current studies indicate radioactive contamination of the ground water is well within acceptable levels and poses no threat to public water supplies. However, DOE will continue their survey efforts to assure public protection.

If the withdrawal were not continued, the cultural values of the Range may not be evaluated for several years. Although the potential threat of inadvertent damage exists from the continued use, conducting the surveys (along with legal requirements to protect significant sites) would help develop a better understanding of the history of the area, and assure the protection of these resources.

The no action alternative would, to some degree, free the land for commercial mining if mineral surveys confirmed the presence of significant resources. It is questionable if domestic livestock grazing would be allowed on the North Range since the carrying capacity in the area is low and would continue to threaten the horses, burros, and other large animals on the Range.

Socio-Economic Impacts:

Socio-economic impacts of the no action alternative would occur at Tonopah, Beatty, and Las Vegas. The population of the area would decrease by 217 in Beatty, 280 at Tonopah, and 3920 at Las Vegas. Based on the 1970 census these changes represent a decrease in population of 19.1, 12.3, and 1.4 percent respectively for Beatty, Tonopah and Las Vegas. These impact figures may be high since they assume all people affected are married and those military people living in Beatty are an integral part of the community. Therefore, the numbers cited may be considered the worst case conditions.

Loss of income and expenditures to the area would be about \$43.2 million; \$0.46 million at Beatty, \$9.2 at Tonopah, and the remainder at Las Vegas.

It is projected that the alternative would cause unemployment to increase by 112, 80, and 1,184 at Beatty, Tonopah and Las

Vegas, respectively. Associated with the decline in income and jobs there would be about 112 homes vacated in Beatty, 80 in Tonopah, and 1,184 in Las Vegas.

From a regional standpoint these impacts probably would not be significant; however, there may be some minor impacts at Beatty and Tonopah. These communities could seek assistance from the President's Economic Adjustment Committee in order to mitigate long-term potential impacts.

There would be impacts experienced at the other Ranges (Luke, China Lake, Fallon, and Hill-Wendover-Dugway) due to not renewing the withdrawal of the Nellis AF Range. These impacts would be associated with aircraft emissions, soil and vegetation destruction due to constructing sites for the range equipment from the Nellis AF Range, and increased noise levels.

REDUCE THE SIZE OF THE WITHDRAWAL

The Air Force does not consider this a viable alternative for the following reasons:

To effectively analyze this alternative, one must first identify land space on the Nellis AF Range which is not needed by the Air Force.

A brief review of the operations conducted on the South and North Ranges is provided in tables 1-2A and B along with table 1-4. The South Range is composed of 986,568 acres; however, due to the MOU signed with the FWS, the Air Force can use only 154,080 acres for air-to-ground activities.

If the remaining 832,488 acres were deleted from the proposed withdrawal, the following impacts to the Nellis AF Range mission would be experienced.

The two air-to-air gunnery ranges would have to be relocated to the North Range or deleted from the Nellis AF Range program since the majority of the land space under these ranges comprise the acreage where the Air Force is prohibited from ground impact. Also there could be some impact to the Air Combat Maneuvering Area. If the Air Force could not get a permit for the tracking instrumentation sub-system sites, the Air Combat Maneuvering Arena would have to be relocated. The Nellis AF Range is the only range available to the Air Force in the western United States which has an instrumented Air Combat Maneuvering Arena. Another is being developed on the Luke AF Range and will be operational in FY 1981; however, it would not be able to handle the combined training requirements. There are four air-to-air gunnery ranges available to the Air Force in the west; the two at the Nellis AF Range, one at the Luke AF Range, and one at Leach Lake on Fort Erwin. Loss of the two Nellis AF Range air-to-air gunnery ranges would put a strain on the users and could also significantly impact operations at Leach Lake and Luke if either had to increase their utilization

for their current users.

The possibility of moving the air-to-air ranges and Air Combat Maneuvering Arena onto the North Range would seriously impact the Nellis AF Range mission. In order to accommodate the air-to-air and Combat Maneuvering operations comparable land space would need to be dedicated on the North Range. Otherwise, activities conducted in the airspace would have to cease while air-to-air and combat maneuvering training took place. Current operations on the North Range are not compatible with air operations done on the South Range, thus, they could not share the airspace at the same time.

During the most intense use of the North Range, Red Flag operations, the training scenarios require withdrawal of all the available land. All other training capability on the North Range is suspended during Red Flag operations in order to provide the required land and airspace. Tactical aircrews who require training during this time must use other Air Force air-to-ground ranges. During the less intense use periods compatible operations are conducted, with some restrictions, by other Federal Agencies; thus, the available land is still utilized.

The North Range contains 1,959,158 acres, of which 537,240 acres have been permitted to DOE (369,280 acres for TTR and 167,960 acres for Pahute Mesa). The MOUs for these areas restrict the type of ground activities conducted by the Air Force; however, the airspace is routinely available for aircraft operations. Because the North Range is a tactical range, aircrews can approach targets from any direction and go through their final ordnance arming operations as they enter the range. It is not feasible to have aircraft operating with armed ordnance over public used land; therefore, the land must be withdrawn and restricted from public use.

With increasing demand for training time and development for new programs, there will be additional demands on the available land space. The TFWC has identified the requirement to expand the EW threat capability and the need to integrate this training with other tactical threats currently on the North Range to provide more realistic scenarios. In response to this, the TFWC has closed the Caliente EW Range and moved the 27 EW sites onto the North Range. Long range planning indicates a need for about 100 EW sites on the Range in order to meet future training requirements. Due to personnel safety, the EW equipment must be sited at a location no closer than three miles from any target which receives ordnance impacts. Therefore, as the EW program develops, the available land will become more intensely used and will force siting more of the threat equipment in the mountainous areas.

ESTABLISH A NEW RANGE IN ANOTHER AREA

New landscape and airspace of equivalent size would be required to move the Nellis AF Range activity to another area, which may be difficult to find. The New Range would have to be unpopulated and no more than sparsely populated in the immediate or adjacent area in order to provide for public safety and limit noise impacts. The airspace would have to be free of any commercial airways and would require being designated as a restricted area by the Federal Aviation Administration (FAA). Weather would have to be considered a prime factor if the new Range were to be utilized to the same magnitude as the Nellis AF Range. Nellis enjoys about 361 days per year of weather which meets Visual Flight Rules (VFR). Fewer VFR days would reduce proportionately the available flying time.

Mission Impact:

If the range land could not be obtained within close proximity to a military installation, it would be necessary to establish a new base to support the operational functions of the units using the Range. The cost of the land (assuming no public land available) and facilities would be in the millions of dollars.

Environmental Impact:

To evaluate the environmental impacts of establishing a new Range the following assumptions are made: land is not available to enlarge any of the existing ranges, no land is available around any existing military installation to develop a new range, a new base would have to be constructed.

At the Nellis AF Range, environmental impacts would be as described in the no action alternative, except that the socio-economic impact of closing Nellis AFB could be significant.

Socio-Economic Impact:

A review of some statistics provided by the Office of Management and Budget, Comptroller Division at Nellis AFB, shows the base to be a significant influence in the Las Vegas area. The base population is 8860, composed of military and civilian employees. These employees have about 15,800 dependents. Additionally, there are 195 civilian contractor personnel employed at the base. Summation of these figures show 24,855 people directly associated with Nellis AFB. The transient pilot training and support population through Nellis swells the above figure by an average of another 1,000 people per month. The population associated with Nellis AFB constitutes the third largest city in Clark County and fifth largest in the state. It hires more employees than the manufacturing-industrial, construction, or transportation sectors in Clark County.

The Nellis AFB resources total more than \$1.5 billion and in fiscal year (FY) 1977 had an expenditure of \$149.2 million. Contracts awarded in FY-77 totaled \$42.9 million, with \$11.9 million going to small business and \$5.2 million to large business in Nevada. The dollar injection by Nellis AFB employees into the greater Las Vegas economy is estimated to be \$31.4 million.

Considering the local awarded contracts and the employees injection, a total of \$48.5 million flows into the greater Las Vegas economy on a yearly basis.

With the regional economic multiplier being slightly more than two (2), the ultimate impact of Nellis AFB is the creation of approximately \$97 million of income for residents of Las Vegas and its environs.

It is anticipated that closing Nellis AFB would result in the loss of 5,430 indirect jobs and reduce Clark County's population by 43,870. Compared to the population data provided in table 2-9, this reduction would represent about 13 percent of Clark County's population.

The socioeconomic impacts could be significant to the area. Assistance to mitigate these impacts is available through the President's Economic Adjustment Committee.

The Nellis AF Range has, to some extent, been irretrievably committed due to unexploded and radioactive contamination to the point where public safety considerations would probably prevent opening the Range for unrestricted use. Although range clearance programs, coupled with restricting ordnance deliveries to only defined targets, would prevent a new Range from having complete restrictions, there would be some areas that would be committed in an irretrievable manner. There would be increased air pollutant emissions from the aircraft and ground mobile equipment, impacts to the soil and watershed, vegetation, wildlife and possibly cultural resources. Some of these impacts may not be significant in the new location, however, these impacts may be more pronounced than they are on the Nellis AF Range due to the conditioning effect from about forty years of use.

JOINT USE

The Nellis Air Force Range is a major DOD range and is currently providing joint-use for DOD activities. The Range is used by the Air Force, Navy, Army, Marine Corps, National Guard, and Reserve Forces. Joint-use agreements with DOE for use of the TTR and Pahute Mesa area have been in effect for some time. To protect animals and wildlife on the Range from DOD activities, MOUs have been negotiated with BLM and FWS for the Wild Horse Range and Desert National Wildlife Range, respectively.

Other joint uses of the Range such as grazing, mining, and recreation are not compatible with the operations presently conducted in the area.

New, compatible joint-uses of the Range is acceptable to the Air Force; however, they must be reviewed by BLM, FWS, and the Air Force with the operational and environmental consequences documented prior to a final decision being made.

The environmental impacts of continued joint-use would be as described in the proposed action.

CHAPTER IX

CONSULTATION AND COORDINATION

During the preparation of the draft environmental statement, the Air Force/BLM team was in contact with other Federal offices, State, and local agencies, interest groups and individuals. Communications ranged from formal written comments to informal personal contact.

On 23 May 1977, a letter was sent out asking for general comments and identification of potential environmental impacts concerning the proposed action.

A Range operational briefing was conducted on August 23, 1977, in Reno, Nevada. The briefing was provided to Federal and State agencies to assist their review of potential impacts and to provide feedback to the environmental team on areas in the draft statement which needed additional documentation.

Notice was published in the Federal Register, Vol. 42, No. 179, September 15, 1977, concerning the Air Force and BLM action to prepare the environmental impact statement on the withdrawal renewal. At about the same time coverage was provided through local news media.

Coordination has been established with FWS concerning Section 7 of the Endangered Species Act.

A meeting was held on March 4, 1978, at the BLM state office to discuss wilderness and areas of critical environmental concerns on the Nellis AF Range. Representatives of the Sierra Club, Nevada Outdoor Recreation Association, and the University of Nevada, Reno, Recreation Department participated in the meeting.

The Draft Environmental Statement (Interior DES No. 79-47) was filed with the Environmental Protection Agency on July 27, 1979, and released to the public. The notice of availability was published in the August 3, 1979, issue of the Federal Register. News releases were issued by the BLM Nevada State Office to publicize the availability of the Draft Environmental Statement. A public hearing was held on the Draft ES on September 18, 1979 at Las Vegas, Nevada. The hearing was announced in the Federal Register notice of August 17, 1979, and was publicized in Nevada through news releases from the BLM Nevada State office. A BLM Nevada State Office representative presided over the hearing, which was recorded verbatim by a professional Court Reporter. The hearing panel was comprised of BLM and Air Force staff.

The ES preparation team reviewed and considered individually each written and oral comment. Appropriate text changes were made for comments that presented new data, questioned facts of analysis, or raised questions or issues bearing directly upon environmental effects of the proposal and alternative. No

response was made to comments or recommendations that did not address the adequacy of the draft ES. Hearing comments requiring response are taken directly from the hearing transcript.

The following pages of this chapter contain:

- a. Agencies and Interested Groups Contacted
- b. Correspondence Received Prior to Publishing Draft Environmental Impact Statement
- c. Correspondence Received During Public Comment Period
- d. Individual Comments Presented at Public Hearing.
(Individual comments were extracted from the Public Hearing Transcript. A copy of the full transcript is on file at Nellis AFB and the state BLM office, Reno, Nevada.)

AGENCIES AND INTEREST GROUPS CONTACTED

COORDINATION IN THE REVIEW OF THE ENVIRONMENTAL STATEMENT

Comments on the Environmental Statement were invited from the following agencies and interest groups:

U.S. Department of Agriculture
Forest Service, Region IV
Soil Conservation Service

U.S. Department of the Interior
Fish and Wildlife Service
National Park Service
Bureau of Mines
Bureau of Land Management
Geological Survey
Water and Power Resources Service
Heritage Conservation and Recreation Service
Bureau of Indian Affairs

U.S. Department of Commerce
National Oceanic and Atmospheric Administration

U.S. Department of Health, Education, and Welfare
Regional Office HEW (IX)
Advisory Council on Historic Preservation

U.S. Department of Energy

U.S. Department of Defense
Corps of Engineers
Air Force

U.S. Federal Aviation Administration

Veterans Administration

U.S. Environmental Protection Agency Regional Office IX

U.S. Department of Housing and Urban Development
Regional Office (IX)
Federal Housing Administration

STATE OF NEVADA AGENCIES

State of Nevada Clearinghouse

Department of Wildlife

State Historic Preservation Officer, Reno

Bureau of Mines

COUNTY

Clark County Commissioners
Nye County Commissioners
Lincoln County Commissioners
Clark County Regional Planning Commission
Nye County Planning Commission
Nye County District Attorney

MUNICIPALITIES

Mayor, Las Vegas, NV
Mayor, North Las Vegas, NV
Mayor, Tonopah, NV
Mayor, Beatty, NV

CONGRESSIONAL DELEGATION

Senator Howard W. Cannon
Senator Paul Laxalt
Representative James Santini

State Legislators

Assemblymen

Bill D. Brady
Lloyd W. Mann
Douglas R. Bremmer
Peggy Cavnar
Michael T. Fitzpatrick
Marion Bennett
Lonnie Chaney
Robbie Robinson
Mike Malone
John M. Vergiels
James J. Banner
Jan Stewart
Karen W. Hayes
Darrel Tanner
Nicholas Horn
Harley L. Harman
Robert E. Price
Thomas J. Hickey
Paul W. May, Jr.
Robert G. Craddock
Nash M. Sena
John E. Jeffrey
Jack F. Fielding
John M. Polish

Senators

James I. Gibson
Eugene V. Echols
Mike Sloan

Jean Ford
Richard E. Blakemore
Keith Ashworth
Mel Close, Jr.
Wilbur Faiss
Floyd R. Lamb
Don W. Ashworth
Joe Neal
William Hernstadt

Governor of Nevada
Honorable Robert List

INTEREST GROUPS

Nevada National Guard
Air Force Association, Reno Chapter
Air Force Association, Las Vegas Chapter
Las Vegas Chamber of Commerce
North Las Vegas Chamber of Commerce
Las Vegas Sierra Club
Sierra Club, National Office, San Francisco
Sierra Club, Toiyabe Chapter
Sierra Club, Sacramento, CA
Sierra Club, Regional Wilderness Coordinator
Sierra Club, Southwest Office
Natural Resources Defense Council
National Wildlife Federation, Western Regional Office
National Wildlife Federation, Washington, D.C.
Nevada Outdoor Recreation Association
Nevada Wildlife Federation
Friends of Nevada Wilderness
Desert Protective Council
Wilderness Society
Foresta Institute
Izaak Walton League of America
Nevada Open Space Council
Audubon Society, Lahonton Chapter
Red Rocks Audubon Society
League of Women Voters, Nevada
League of Women Voters, Las Vegas
Northern Nevada Native Plant Society
American Horse Protection Association
National Wild Horse Association
Wild Horse Organized Assistance/International Association for
the Protection of Wild Horses and Burros
Archaeo-Nevada Society
Southern Nevada Museum Association
Nevada Archaeological Association
Nevada State Historical Society
Governor's Advisory Mining Board
Nevada Mining Association
Exploration Geologists of Nevada
Geological Society of Nevada
Nevada Miners and Prospectors

Nevada Prospectors Association
Attorneys Evans, Kitchell, and Jenckes
Southern Nevada Conservation Council
Las Vegas Jeep Club
Motorcycle Racing Association of Nevada
Southern Nevada Off-Road Enthusiasts
Nevada Cattlemen's Association
Nevada Farm Bureau
Nevada Woolgrowers Association
University of Nevada, Max D. Fleischmann College of
Agriculture, Reno, Nevada
Renewable Natural Resources, University of Nevada, Reno, NV.
Desert Research Institute, University of Nevada, Reno, NV
Desert Research Institute, Las Vegas, NV

LIBRARIES

University of Nevada, Las Vegas, NV
Washoe County Library
● Clark County Library District Headquarters
 Decatur Branch
 Las Vegas City
 West Las Vegas
 Indian Springs Branch
Beatty Community Library
Getchell Main Library, Reno, NV
Goldfield Public Library
Lincoln County Library, Pioche, NV
 Caliente Branch
North Las Vegas Public Library
Tonopah Public Library

**Correspondence Received Prior to Publication
of the Draft Environmental Statement**



UNITED STATES
ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION

NEVADA OPERATIONS OFFICE
P. O. BOX 14100
LAS VEGAS, NEVADA 89114

JUN 21 1977

Department of the Air Force
Headquarters Tactical Air Command
Attention: Director
of Engineering and Construction
Langley Air Force Base, Virginia 23665

Dear Sir:

Reference is made to your memorandum of May 23, 1977, concerning the preparation of an environmental statement to support the withdrawal and continued use of public lands located in Clark, Nye, and Lincoln Counties, Nevada by the U.S. Air Force. Members of my staff have already consulted with officials at Nellis Air Force Base regarding this subject.

The successful withdrawal of the public lands in question are of mutual interest to ERDA and the Tactical Air Command. Please be assured that my staff will cooperate with you in the preparation of this environmental statement. I suggest a more suitable arrangement for achieving the preparation of the environmental statement would be for appropriate members of my staff to provide operational and environmental inputs to Nellis Air Force Base rather than directly to your office. Arrangements have already been made to do this using Major M. W. Toth as the principal point of contact. This should save a great deal of duplication of effort and provide a much speedier and closer working relationship for preparation and review.

Dr. E. M. Douthett and Mr. Ross Kinnaman of my Physical Sciences Division would be the point of contact for the Nevada Operations Office. Please feel free to contact them (702/734-3491) directly if you wish to discuss this arrangement.

Sincerely,

Mahlon E. Gates
Manager

cc: Maj. M. W. Toth
Nellis AFB
H. F. Mueller, NOAA/WSNSO
Las Vegas, NV
E. D. Campbell, ERDA/NV, BSD



Advisory Council on
Historic Preservation
1522 K Street N.W.
Washington, D.C. 20005

June 2, 1977

Mr. William A. Duffy
Director of Engineering and Construction
Headquarters Tactical Air Command
Department of the Air Force
Langley Air Force Base, Virginia 23665

Dear Mr. Duffy:

This is in response to your May 23, 1977, notice of intent to prepare an environmental impact statement on the continued use of approximately 3,000,000 acres of public lands located in Clark, Nye and Lincoln Counties of Nevada for use by the United States Air Force as air combat maneuvering, gunnery and bombing range.

As part of its planning process the USAF should arrange to have the areas to be impacted by the undertaking surveyed to identify cultural properties eligible for inclusion in the National Register of Historic Places. After the survey is complete, if the USAF determines, in consultation with the Nevada State Historic Preservation Officer, that the undertaking will result in an effect on any property included in or eligible for inclusion in the National Register it is required to afford the Council an opportunity to comment on the undertaking pursuant to Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470f, as amended, 90 Stat. 1320) in accordance with the "Procedures for the Protection of Historic and Cultural Properties" (36 C.F.R. Part 800).

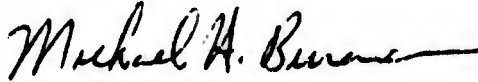
Subsequently, the environmental statement prepared for the undertaking should assess its impact on historic and cultural resources. If any of these properties are included in or eligible for inclusion in the National Register the environmental documentation should demonstrate contact with the Council and include a copy of its comments.

Should you have questions or require additional assistance in this matter, please contact Michael H. Bureman of the Council's staff at


Page 2
June 2, 1977
Mr. William A. Duffy
Nellis Air Force Range

P. O. Box 25085, Denver, Colorado 80225, telephone number (303) 234-4946,
an FTS number.

Sincerely yours,



Louis S. Wall



Assistant Director, Office
of Review and Compliance



United States Department of the Interior

FISH AND WILDLIFE SERVICE
LLOYD 500 BUILDING, SUITE 1692
500 N.E. MULTNOMAH STREET
PORTLAND, OREGON 97232

May 19, 1978

Memorandum

TO: State Director, Nevada Bureau of Land Management,
Reno, Nevada

FROM: Acting Assistant Regional Director, Federal Assistance,
Region 1, Portland, Oregon (AFA-SE)

SUBJECT: Request for Informal Consultation - Section 7 - Endangered
Species Act - Nellis Range Withdrawal

Due to the large number of species known and suspected to occur on or adjacent to the Nellis Range it is our opinion that a study should be conducted to:

- 1) Determine all candidate and proposed threatened or endangered (T/E) plant species which occur on the Nellis Range.
- 2) Delineate the exact locations of such populations.
- 3) Gather sufficient biological data on the populations of these species for use in making sound management decisions and to make determinations on current impacts to the subject species.

Such a study should be for at least one full collecting season during an average moisture year and prior to any activities that might jeopardize the existence of the subject species.

EG&G Inc., under the direction of Dr. William A. Rhoads, 130 Robin Hill Road, Goleta, California 93017 has done extensive studies on the Nevada Test Site and would be a qualified contractor to conduct such studies.

Seventeen critically endangered Nevada species (ATTACHMENT 1) have been submitted to the Nevada State Forester and Fire Warden, by the Northern Nevada Native Plant Society, for protection under the provisions of Nevada State Law, NRS 527-050.

Page two
May 19, 1978

Several of the T/E species identified in your letter are high on our priority list for official listing.

The solicitor for the Department of Interior has issued a negative opinion on mitigation of impacts to Critical Habitat of threatened or endangered species. This should be taken into consideration in your statement on page two of your letter regarding mitigation.

The Fish and Wildlife Service may be conducting some botanical studies this year on the Desert National Wildlife Range adjacent to the Nellis withdrawal area. If and when these studies are complete we can provide you with a copy of these data. However, this study will be preliminary in nature and is not intended to serve as a detailed study since minimal funds are available this year.

We are enclosing copies of status reports on three of the thirty-seven species and this information should supplement the data in your files (ATTACHMENT 2). We lack sufficient data to render a complete biological opinion. These data can only be obtained by field inventories. After these studies are conducted we suggest that informal consultation be re-initiated or as final rulemakings appear on the subject species formal consultation be requested.

The Service would appreciate a response to this biological opinion outlining your intent and objectives in providing protection for the plant taxa involved.



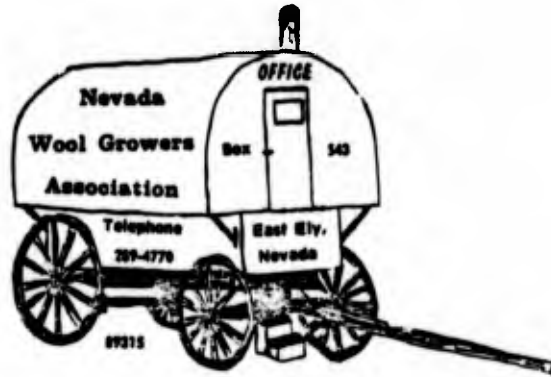
Attachments

OFFICERS

Ray Staley, President
Salt Lake City, Utah
Fred Fuistone Jr., Vice President
Smith, Nevada
Vivian Joy, Secretary-Treasurer
East Ely, Nevada

DIRECTORS

Elias Golconcha
Elko, Nevada
Gracian N. Uhalde
Ely, Nevada
Stanley Ellison
Tuscarora, Nevada
Loyd Sorenson
Elko, Nevada
Ray Corta
Jiggs, Nevada
Lawrence Henriod
Ely, Nevada
John Carpenter
Elko, Nevada
DeLoyd Safforthwalte
Tuscarora, Nevada
Bert Paris
Ely, Nevada
Robert Belzarona
Imlay, Nevada
Pete Paris, Jr.
Austin, Nevada
Reed Robison
Ely, Nevada
Jack Mendibourri
Eureka, Nevada
Alex Dufurrena
Winnemucca, Nevada



June 30, 1977

Mr. William A. Duffy
Director of Engrg & Const.
HQ TAC /DEEV
Langley AFB, VA 23665

Dear Sir:

In reference to your letter pertaining to continued use of public lands for an Air Force Base, please find the following:

We strongly object to withdrawal of the range if the multiple use concept can not be administered. We feel we can get along with using the land as long as multiple use is maintained. Sections of the land in Nye, Lincoln, and Clark County to which you are referring have a great economical impact on the livestock industry for most of the producers in Southern and Eastern Nevada.

As long as you use the parts above the ground and the livestock can use the forage produce on the ground, we do not object to this type of proposal. If you have any questions, please feel free to contact us.

Sincerely yours,

Ray Staley

Ray Staley
President

RS:jw

LAW OFFICES
McCANDLESS & BARRETT
1707 H STREET, N.W.
WASHINGTON, D.C. 20006

ROBERT C. McCANDLESS
DAVID M. BARRETT
RAY L. HANNA

RUSSELL J. GASPAR

SUITE 1008
(202) 223-8440

June 22, 1977

William A. Duffy
Director of Engineering
and Construction
Department of the Air Force
Headquarters, Tactical Air Command
Langley A.F.B., Virginia 23665

Dear Mr. Duffy:

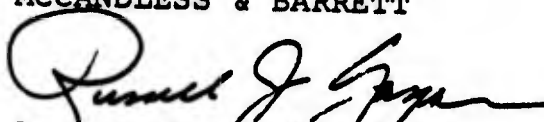
Thank you for your letter of May 23, concerning the preparation of an environmental impact statement for the Nellis Air Force Range. Of particular concern to our client, the American Horse Protection Association, is the effect that the operation of the Air Force range will have on the wild horses that roam a portion of the public lands in question. For this reason, we would urge that the environmental impact statement examine the negative impacts of Air Force operations on the wild horses in great detail, with a view toward minimizing or eliminating those impacts.

I would appreciate receiving a copy of the draft environmental impact statement when it is completed.

Thank you for your cooperation and assistance.

Very truly yours,

McCANDLESS & BARRETT


By Russell J. Gaspar

RJG:dsl

MUSTANGS & BURROS

June 16, 1977

Commander William A. Duffy
Director of Engineering and Construction
Department of the Air Force
Headquarters Tactical Air Command
Langley Air Force Base, Virginia 23665

RE: DEEV

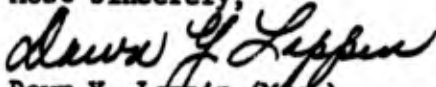
Dear Commander Duffy:

Thank you very much for your request for comments upon the Environmental Impact Statement on the continued withdrawal and use by the Air Force of Nellis Air Force Range. This organization can only comment our concerns as they apply to the wild horses.

Under a joint agreement with the Bureau of Land Management the portion of the North Range known as the Nevada Wild Horse Range, supports a substantial number of wild free-roaming horses, in an environment relatively safe from harassment and capture. It is one of only a few such areas in existence. We understand that the Northern Boundary of the Nevada Wild Horse Range is currently being fenced in order to contain the horses within their boundary and to restrict illegal livestock entry. When this fencing is complete it would be our recommendation that the Bureau of Land Management determine the actual use and adjust the horse population to what the resource can support. The horses do not appear to be affected by the operations in either the North or South Ranges. We would hope that the Air Force continues its' policies that have insured the safety and well-being of the horse population in the Wild Horse Range.

This organization strongly recommends the continuance of withdrawal of these lands for the purposes as described in the operations sheet.

Most sincerely,


Dawn Y. Lappin (Mrs.)



NEVADA HISTORICAL SOCIETY

Founded 1904

1650 NORTH VIRGINIA STREET
TELEPHONE 784-6397
RENO, NEVADA 89503

June 1, 1977

William A. Duffy
Director of Engineering and Construction
Headquarters, Tactical Air Force
Langley Air Force, VA 23665

Dear Mr. Duffy:

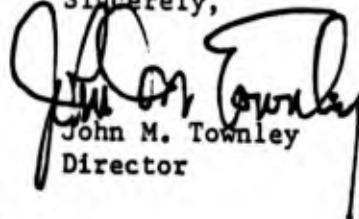
Reference is made to your letter to the Society dated May 23, 1977, subject: Continued Withdrawal of Public Lands for Use as the Nellis Air Force Range.

I am concerned that the Environmental Impact Statement mentioned in the subject letter properly study the historic sites within the Range and properly evaluate the impact of gunnery activity on these fragile and irreplaceable bits of Nevada's heritage.

Would you please advise what individuals or organizations are conducting the cultural resource inventory portions of the EIS for you and what methods are employed to identify and protect these sites?

Thank you for your attention.

Sincerely,



John M. Townley
Director

copies to: Dr. Robert Elston, NAS
Dr. Donald Fowler, NAS

OFFICE OF THE MAYOR

WILLIAM H. BRIARE



June 21, 1977

Mr. William A. Duffy
Director of Engrg. & Const.
Department of the Air Force
Headquarters Tactical Air Command
Langley Air Force Base, Virginia, 23665

RE: Continued withdrawal of public lands for
use as Nellis Air Force Range.

Dear Mr. Duffy:

It gives me great pleasure to furnish comments for inclusion in the Environmental Impact Statement on the proposed continued use of public lands located in Clark and Nye Counties in the State of Nevada.

The City of Las Vegas is very proud to have Nellis Air Force Base as a part of Nevada's largest community. The impact and contributions to all of Southern Nevada by the personnel of Nellis Air Force Base is of great significance both economically and socially.

Nellis Air Force Base has very important missions to perform and requires large areas of public lands to accomplish their objectives. To even consider a possible reduction is unthinkable.

The City of Las Vegas sincerely hopes that the continued use of public lands comprising the Nellis Air Force Range will be approved for an indefinite period.

Sincerely,

William H. Briare
Mayor of Las Vegas

KEN O'CONNELL
Executive Vice President

GREATER



LAS VEGAS CHAMBER OF COMMERCE

June 22, 1977

Mr. William A. Duffy, Dir. of Engrg. & Const.
Department of the Air Force
Headquarters Tactical Air Command
Langley Air Force Base, Va. 23665

RE: Continued Withdrawal of
Public Lands for Use as
the Nellis Air Force Range

Dear Mr. Duffy:

The Greater Las Vegas Chamber of Commerce is pleased to be given the opportunity to go on record in support of the continued withdrawal of public lands located in Clark, Nye and Lincoln Counties of Nevada for use by the United States Air Force for air combat maneuvering and for a gunnery and bombing range.

The existance of Nellis Air Force Base in the Las Vegas Valley has provided an abundance of favorable publicity for our area. We are proud that the "Home of the Fighter Pilot" is in our community.

We understand that the activity on the Nellis Air Force Range is continuously growing, e.g., the much publicized Red Flag operation. Any increase in range activity has a significant impact on the community. We have always cooperated to meet the demands required to support Nellis Air Force Base through manpower, housing and other resources.

The Greater Las Vegas Chamber of Commerce is willing to assist in a positive manner to obtain continued withdrawal of public lands for the Nellis Air Force Range.

Sincerely,

Charles L. Ruthe
President
KO:CLR:el

9-18



MIKE O'CALLAGHAN
GOVERNOR

THE STATE OF NEVADA
EXECUTIVE CHAMBER
CARSON CITY, NEVADA 89710

June 14, 1977

William E. Rains
Colonel, U.S. Air Force
Headquarters Tactical Air Command
Langley Air Force Base, Virginia 23365

Dear Colonel Rains:

Thank you for your notification concerning the Environmental Impact Statement being prepared by the Army Corps of Engineers on behalf of the Department of the Air Force (application M-16095).

The State of Nevada is interested in being continuously advised of the progress being made on the Draft EIS and I hereby designate Mr. Bruce Arkell, State Planning Coordinator, as the state liaison officer for this purpose. A major concern of this Administration is the large amount of land withdrawn for single purpose uses throughout the state. I hope that during your preparation of the EIS all consideration will be given to making appropriate reductions in the size of the currently withdrawn area, without jeopardizing the mission of the Air Force. This would then, presumably, free the released land for other uses.

Also of concern is the Tonopah Test Range facility. This program is important to the economy of southern Nevada and was used as a major basis for the state's objection to the installation of the Project Seafarer on land withdrawn by Nellis Air Force Base. Currently the lease between the Tonopah Test Range and Nellis Air Force Base is being negotiated and the EIS should provide for continuation of the lease, under terms that will be acceptable to the Tonopah Test Range people.

Thank you for advising us of the status of this project. In the future, please provide all additional comments and inquiries directly to Mr. Arkell.

Sincerely,

A handwritten signature in black ink that reads "Mike O'Callaghan".
Mike O'Callaghan
Governor of Nevada

ELMO J. DERICCO, Director
* NORMAN S. HALL, Assistant Director

Address Reply to
Nye Bldg., 201 So. Fall Street
Carson City, Nevada 89701
Telephone (702) 885-4360

MIKE O'CALLAGHAN
Governor



DIVISIONS
LANDS
FORESTRY
STATE PARKS
WATER RESOURCES
CONSERVATION DISTRICTS
OIL AND GAS CONSERVATION
STATE ENVIRONMENTAL COMMISSION
COLORADO RIVER RESOURCES

STATE OF NEVADA

Department of Conservation and Natural Resources

OFFICE OF THE DIRECTOR
CARSON CITY, NEVADA 89701

July 13, 1977

Mr. William A. Duffy
Director of Engineering and
Construction Headquarters
Tactical Air Command
Department of the Air Force
Langley Air Force Base, Virginia 23665

Dear Mr. Duffy:

This is in response to your letter of May 23, 1977. Notice of intent to prepare an environmental impact statement on the continued use of approximately three million acres of public lands located in Clark, Nye, and Lincoln Counties of Nevada for use by the United States Air Force as air combat maneuvering, gunnery, and bombing range. We recognize that our response to the proposal postdates your comment deadline, but the Nevada State Historic Preservation Office was not directly notified by the Air Force as to the proposed actions. Since one of the primary responsibilities of this office is to serve as a coordinating agency for all projects that may or will affect the historical or cultural resources of the state of Nevada, we feel compelled to comment on the proposed project regardless of the review deadline.

The environmental impact statement under preparation should very carefully address the cultural resources in the area to be affected by the proposed Air Force actions. If the areas impacted in the past and those to be impacted in the future have not been surveyed for historical and archaeological sites, then this should certainly be done as a part of your preliminary environmental assessment. Only those resources that have been recognized and assessed can be effectively managed. Toward this end, professional archaeologists and historians should be consulted with, in order to develop a cultural resource management plan for the Nellis Bombing and Gunnery Range. In this way, future destruction of cultural resources can be avoided.



Mr. William A. Duffy
Page 2

An archaeological or historical site is a nonrenewable resource which should not be destroyed or despoiled capriciously. The type and level of damage the proposed activities would have on Nevada's very fragile and vulnerable cultural resource base is total and, from our point of view, unacceptable.

In respect to legislation relating to the proposed undertaking, we suggest you review the requirements placed on federal agencies by Executive Order 11593, Section 106 of the National Historic Preservation Act, and "Procedures for the Protection of Historical and Cultural Properties" (36CFR, Part 800).

If we can be of assistance to you during your environmental impact statement preparation or compliance procedures, please call us.

Sincerely,

A handwritten signature in cursive script that reads "Kimberly Wood".

Kimberly Wood
State Historic Preservation Officer

EMIAN HALL, Director
IYE ROBINSON, Assistant Director
EDDIE L. LITTLE, Assistant Director
Address Reply to

Capitol Complex
Nye Bldg., 201 S. Fall Street
Carson City, Nevada 89710
Telephone (702) 885-4360

MIKE O'CALLAGHAN
Governor



DIVISIONS
Conservation Districts
Environmental Protection
Forestry
Historic Preservation and Archeology
State Lands
Mineral Resources
State Parks
Water Planning
Water Resources

COMMISSIONS
State Conservation Commission
State Environmental Commission

STATE OF NEVADA

Department of Conservation and Natural Resources

OFFICE OF THE DIRECTOR
CARSON CITY, NEVADA 89710

August 26, 1977

Mr. E. I. Rowland, Director
Nevada State Office
Bureau of Land Management
Room 3008, Federal Building
300 Booth Street
Reno, Nevada 89509

Dear Mr. Rowland:

Subject: SCHEDULED PREPARATION OF AN ENVIRONMENTAL
STATEMENT ON A PROPOSAL TO RENEW WITHDRAWAL
FROM PUBLIC USE THE NELLIS AIR FORCE BASE
GUNNERY AND BOMBING RANGE.

In a letter to William A. Duffy dated July 13, 1977, this office provided initial comment on the proposed action. At that time, however, we did not have a copy of the environmental statement preparation plan, a copy of which you provided us. In reviewing this plan and our original letter (we have included a copy) we have one additional comment. On page five of the plan it is stated that due to a data gap, a Class I survey will be conducted. Since a Class I survey entails only a literature search, it cannot remedy a data gap but only further define it. Therefore, it seems far more relevant that a Class II survey be completed. This would provide a far more reliable model for assessing the nature and distribution of cultural resources. In discussing this matter with Robert York of the BLM, he indicated that this had been a major topic of discussion and was near resolution.

August 26, 1977
Mr. E.I. Rowland, Director
Page 2

If we may be of further assistance in the preparation or review of this cultural resource inventory plan, please feel free to contact us.

Sincerely,

A handwritten signature in cursive script that reads "Kimberly Wood". The signature is written in dark ink and is positioned below the word "Sincerely,".

Kimberly Wood
State Historic Preservation Officer

KW:CZ:ba

Attachment

UNITED STATES DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

P.O. Box 4850, Reno, NV 89505

June 15, 1977

William A. Duffy
Director of Engrg & Const
Department of the Air Force
Headquarters Tactical Air Command
Langley Air Force Base, VA 23665

Dear Mr. Duffy:

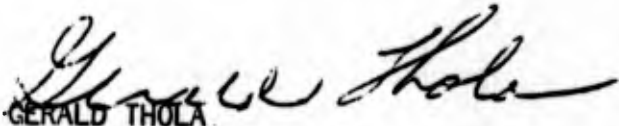
We have reviewed your letter of May 23, 1977, concerning the preparation of an Environmental Impact Statement for continued withdrawal of public lands for use as the Nellis Air Force Range.

One comment we have is that you should have a statement about Prime and Unique Farmland, such as, "At this time, the SCS has not made a study of the area, but based on knowledge of this area, they do not feel that there is any Prime or Unique Farmland on Nellis Air Force Range. As funds permit, they will make an official determination."

We would also like to see some comment on any measures you have taken, or planned, for conservation of soil and water on the Range.

Thank you for the opportunity to have input into the E.I.S. process. If we can provide you with technical assistance, please contact me.

Sincerely yours,


GERALD THOLA

State Conservationist



Correspondence Received During Public Comment Period

North Las Vegas CHAMBER OF COMMERCE

1023 East Lake Mead Boulevard
North Las Vegas, Nevada 89030
phone 702 642-9595



August 21, 1979

State Director (N-921)
Bureau of Land Management
Room 3008, Federal Building
300 Booth Street
Reno, Nevada 89509

Dear sir:

We have reviewed the Draft Environmental Impact Statement (DEIS).

During the Board of Directors meeting of the North Las Vegas Chamber of Commerce, August 16, 1979, it was unanimously voted to endorse the retention of withdrawal lands.

Nellis Air Force Base and Southern Nevadans have enjoyed an excellent rapport since its establishment. Use of these lands have served a great portion of our economic basis. Also, prior and current use of these lands are not endangering our environment through Nellis Air Force operations.

Therefore we feel that continuance of Nellis Air Force Operations should not be placed in jeopardy or at a standstill and said lands be utilized by the Air Force.

Sincerely,

Ellen Frehner, CCE
Executive Vice President.

EF:b

cc: Col. Win E. DePoorter
Commander
57th Combat Support Group
Nellis Air Force Base, Nevada

W H O A !

BOARD OF TRUSTEES
DAVID R. BELDING
JACK C. McELWEE
GORDON W. HARRIS
BELTON P. MOURAS
GERTRUDE BRONN, Honorary
In Memoriam

LOUISE C. HARRISON
VELMA B. JOHNSTON, "Wild Horse Annie"

WILD HORSE ORGANIZED ASSISTANCE
INC.

A Foundation for the Welfare of
Wild Free-Roaming Horses and Burros

P. O. Box 555
Reno, Nevada 89501
Telephone 323-5908
Area Code 702

August 22, 1979

Mr. E. F. Spang, Director
Bureau of Land Management
Room 3008, Federal Building
300 Booth Street
Reno, Nevada 89509

Re: 1792 Nellis DEIS (N-921.2)

Dear Mr. Spang:

Thank you very much for your request to comment on the DEIS on the withdrawal of public lands for the Nellis Air Force Bombing Range. We can only comment on the portion of the North Range known as the Nevada Wild Horse Refuge, which supports a substantial number of wild free-roaming horses. Up to the present we have generally supportive of the continued withdrawal for several reasons, one being the safety of the animals. However, the DEIS proposal seemingly implies an overall expansion of testing without identifying the negative impacts on wild horses. The DEIS fails to produce any programs of enlightenment (research), the alternatives where the impacts could be minimized for these particular animals.

Our concerns are:

- 2-2 | 1. Pollutants impact on
 - a. ground cover
 - b. water
 - c. vegetation

- 2-3 | 2. Construction
 - a. migration-immigration
 - b. obtaining cover, food and water*

- 2-2 | 3. Radioactivity levels
 - a. safe level for horses
 - b. water
 - c. vegetation

- 2-1 | 4. Vegetation impacts on the 7600 acres
 - a. alternative source
 - b. loss in terms of AUMs for horses

* stress caused from excessive heat, and lack of water caused deaths of 50 odd horses at Dugway Proving Grounds June-July, 1976.

9-27



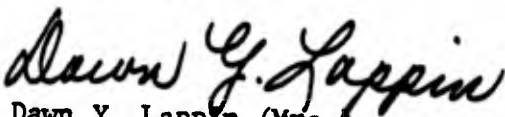
- 2-5 | 5. Noise level
a. stress after additional sorties are instituted

The Air Force and the Bureau has had ample time since the establishment of the agreement in 1962, 1965 respectively to determine levels of stress, toxicity, migration patterns in relationship to the activities on the bombing range. Since none of these were listed, suggested or implied we must reply to the negative to the DEIS. We query why some alternatives were not suggested or those that were not explained in detail.

- 2-2 | 1. Do pollutants(dust, radioactivity, etc.) permeate water and forage supplies? If so, what are the acceptable levels safe for wild horses? Would it be possible to seed other areas away from contaminated sites?
- 2-3 | 2. What disruption would be caused by construction? Is it possible to do this during seasons of use by the horses?
- 2-4 | 3. If effects are unknown of electromagnetic radiation, why are studies not suggested to identify those levels? Surely this information would also benefit mankind.
- 2-5 | 4. Noise levels at the present seemingly are not disruptive, what happens when an additional 5,000 sorties are instituted? If the agencies do not plan on studies, who and how will this level of stress be determined?

The primary motivations being economic, political, and ideological, all of which exist on the level of awareness. It is the awareness and consciousness that must be elevated; if the mistrust is to be reversed. Factors compounding the situation are seen daily in the news media...relating to some 'untold' story that will and does affect human lives everyday. Perhaps it is conceivable that the Refuge is no longer suitable as a refuge if increased activity denies the protection offered--but instead a hideous prison from which there is no escape. We cannot accept the DEIS as identifying the impacts on wild horses and as responsible government employees, the Bureau should not. The Bureau cannot possibly uphold its responsibilities without knowing what the proposal will do to those horses.

Most sincerely,



Dawn Y. Lappin (Mrs.)
Director

*Nearly one full year after the questionable deaths of 50 odd horses at Dugway Proving Grounds, it was disclosed that testing had been responsible for the deaths of over 6,000 sheep in 1968. One month later an entire band of wild horses were auctioned to the public from Dugway Proving Grounds.

Response to Questions

2-1 The 7600 acres of vegetation impact described in the draft EIS involves acreage on both the North and South Ranges. There are no alternative sources on the Nellis AF Range to replace the estimated impact acreage. The text has been modified on page 3-8 to discuss the long term net change in AUM's on the Wild Horse Range.

2-2 The Environmental Protection Agency's air quality standards have been established for the protection of health (primary standards) and welfare (secondary standards). In general, these standards should be sufficient to protect wild horses and their vegetation. The draft EIS has shown that aircraft emissions and fugitive dust generation will be within the federal standards. As indicated on page 3-8, vegetation adjacent to construction activities could accumulate enough dust on the leaves to prevent respiration. This vegetation would also be within a zone where it could receive impacts from crushing or soil compaction. These impacts could be more significant in terms of vegetation loss and consequently this acreage is included in the 7600 acres. There will be no construction near water sites so they should not be significantly impacted. Due to the number of acres (93) that would be impacted on the Wild Horse Range and lack of rainfall, reseeding would be of limited value and may be no more productive than natural revegetation.

There are no known radioactive contaminated sites on the Wild Horse Range. Perhaps the best way to describe the impact of radioactivity on wild horses is to draw attention to the herd of beef cattle maintained by the DOE on the Nevada Test Site (NTS). Since 1955, the AEC (now DOE) has sponsored an Animal Investigation Program in conjunction with the test activities conducted at the NTS. Periodically (twice a year) a selected number of the beef herd (usually six) are sacrificed and the tissues of these animals are radioanalyzed. Also any road kills of mule deer are similarly sampled. Samples of desert bighorn sheep are obtained in cooperation with the U.S. Fish & Wildlife Service on the Desert National Wildlife Range located to the east of the Nevada Test Site. The radionuclides found in these animal tissues, such as cesium-137 and strontium-90, have been decreasing over the years since the Limited Test Ban Treaty and closely follow the reduction in worldwide fallout. Actually the levels of these isotopes are somewhat lower than those found in animals living in wetter climates where the atmospheric fallout is rained out. [See reference 3.]

EPA also maintains an off-site sampling network and they typically have found concentrations of tritium and xenon-133 which, when averaged over the year, have remained less than 0.01 percent of the Radiation Concentration Guide. The concentration of krypton-85 observed over the years are difficult to distinguish from that derived from worldwide nuclear reactors and average

about 17 pCi/m³ (0.02 percent of the concentration guide). The levels of radioactivity are so low they would have no significant impact on the wild horses. [See reference 3.]

2-3 Disruption from construction activities would result in wild horses and burros avoiding the areas during construction periods. It is also possible their migration routes could be slightly altered while construction occurs. Since the horses use the range year-round, it may not be possible to mitigate these conditions; however, they will be temporary and are not considered to be significant. Again, it is pointed out that no construction will occur near existing water facilities.

2-4 It is believed the electromagnetic radiation analysis provided on page 3-10 sufficiently describes the potential impact and no additional studies appear necessary. It is emphasized that microwave radiation from the electronic warfare radar simulators will be similar to existing military and civilian systems which have been operating many years without any noticeable ecological damage.

2-5 The Air Force has been working for three years to develop a computer program for predicting noise contours on ranges comparable to the program developed for airfields (Air Installation Compatible Use Zone). Aircraft operations on tactical ranges differ from operations at an airfield in that, on ranges, the aircraft can operate at varying altitudes and airspeeds, and also do not have established routes. Operations around an airfield are controlled and aircrews are required to fly assigned routes at designated airspeeds and altitudes. Due to these major differences, the Air Force has not yet been able to quantitatively describe the noise environment on ranges. A simple approach can, however, be used to qualitatively evaluate the significance of increasing the number of operations on the range provided the aircraft type and mix remain unchanged.

It is projected there will be a 15 percent increase in sorties. Since noise levels (decibels) are a logarithmic function, doubling the sorties would add 3 decibels (dB). A 26 percent increase would add 1dB. Therefore, it can be seen that an increase of 15 percent would add less than 1dB to the existing noise levels. The average person cannot hear a difference of 3dB in noise levels.

The Air Force is replacing the older type fighters with ones that are quieter. As the ratio of new to old aircraft increases, there will be a slight reduction in the overall noise level. Considering the above factors, the future noise conditions on the Nellis AF Range should not significantly differ from existing conditions.

Wild horses and bighorn sheep are the more significant animal species on the Nellis AF Range. The sheep population has been stable for many years, there is no material difference in the age structure, and wild horse populations on the Wild Horse Range have

grown in the past few years. Although there may be some uncertainty in long term effects, the past 40 years of noise exposure over the range has not resulted in any noticeable change for these species. The most critical factors concerning their survival appear to be predators and availability of food and water.

Based on the above factors, the Air Force does not feel studies to determine noise impacts are warranted. The Air Force commits to continuing responsibilities established in the MOU's. If it is determined that some future Air Force activity may threaten wild horses existence on the range, the Air Force will work with other concerned agencies to develop necessary mitigation actions.



United States Department of the Interior

GEOLOGICAL SURVEY
RESTON, VA. 22092

OFFICE OF THE DIRECTOR

In Reply Refer To:
EGS-DES-79/47
Mail Stop 760

15 SEP 1979

Memorandum

To: Division of Land Resources and Realty, Bureau of Land Management
Attention: Robert Scherer (321)

Through: Assistant Secretary--Energy and Minerals *H. P. Smith* SEP 10 1979

From: Director, Geological Survey

Subject: Review of draft environmental statement for public land withdrawal, Nellis Air Force Bombing Range, Nye, Clark and Lincoln Counties, Nevada

We have reviewed the draft statement as requested in a memorandum of August 6 from the Assistant Director, Lands and Rights-of-Way.

3-1 Regarding further mineral-resource investigations (p. 2-34, last par.), in order for field work to be considered by the Geological Survey, some planning meetings are necessary with the Air Force and Bureau of Land Management managers to determine what work needs to be done, and the timing, funding, and other arrangements. We would then need to determine our capabilities and prepare a project proposal so that a memorandum of agreement could be prepared. Any project of this sort would need to be worked into our schedule and it should be noted that we are now making plans for more than two years hence.

Henry W. Coulter
for H. William Mehard



Response to Questions

3-1 The Department of Defense (DOD) and BLM are negotiating a compromise on their differences of the Federal Land Policy and Management Act (FLPMA) mineral survey requirements as they apply to Engle Act withdrawals. This proposed compromise would require BLM to fund any additional mineral surveys they require to support this proposed withdrawal. The Air Force has already conducted the equivalent of a "Level I" mineral survey in fulfilling its requirements under the National Environmental Policy Act (NEPA) and the Engle Act. If BLM determines additional surveys are required, they may be conducted according to their time frame and availability of funds.



UNITED STATES
DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY
Conservation Division
345 Middlefield Road
Menlo Park, California 94025

September 6, 1979

Memorandum

To: State Director, Nevada BLM

From: Conservation Manager, Western Region

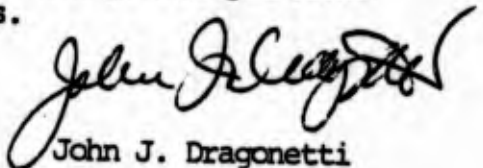
Subject: Review of Draft ES for Proposed Public Land Withdrawal,
Nellis Air Force Bombing Range, Nevada

The draft environmental statement has been reviewed for geology and minerals descriptions, and we offer the following comments:

1. Geology and locatable minerals resources have been well covered.
- 4-1 | 2. The figure on page 2-10 is labeled "General Soils - Geology Map" but instead shows general landscape features.
3. Information on leasable minerals is lacking. The following information should be included to your section on mineral resources:

4-2 | The area within the Nellis Air Force bombing range contain lands that are prospectively valuable for oil and gas, and for sodium and potassium. Also, there are known occurrences of alunite and potash. The enclosed maps are for your reference, and further delineate the leasable minerals areas.

The office of the Pacific Area Geologist, located in Menlo Park (FTS 467-2093) will be able to further assist you on questions you may have regarding leasable minerals.


John J. Dragonetti

Enclosure

Response to Questions

4-1 Text revised, see figure 2-3 on page 2-10. Coordination with the Soil Conservation Service shows no soil surveys have been conducted on the range. In absence of the formal surveys, it is believed the soils data provided shows the ecological relationships with vegetation and wildlife and is adequate for this purpose.

4-2 Text on page 2-31 has been revised to show the additional data which was apparently omitted from the minerals report prepared by the U.S. Geological Survey and Bureau of Mines. The Air Force extends appreciation to USGS for insuring all available data is made a part of this document.



United States Department of the Interior

BUREAU OF RECLAMATION
LOWER COLORADO REGIONAL OFFICE

P.O. BOX 427

BOULDER CITY, NEVADA 89005

IN REPLY
REFER TO: LC-150
565

SEP 7 1979

Memorandum

To: State Director (N-921), Bureau of Land Management,
Room 3008, Federal Building, 300 Booth Street,
Reno, Nevada 89509

From: Regional Environmental Officer

Subject: Draft Environmental Impact Statement, Public Land
Withdrawal, Nellis Air Force Bombing Range, Nye, Clark,
and Lincoln Counties, Nevada

The subject document has been reviewed and we find the proposed plan will not have an impact on any of Reclamation's primary activities.

We appreciate the opportunity to review this statement.

Herbert R. Green





United States Department of the Interior

FISH AND WILDLIFE SERVICE

SACRAMENTO AREA OFFICE
2800 COTTAGE WAY, ROOM E-2740
SACRAMENTO, CALIFORNIA 95825

Sep 7, 1979

TO: State Director Nevada
Bureau of Land Management
Reno, NV

FROM: Area Manager (AM-RW), Sacramento, CA

SUBJECT: Draft Environment Statement - Withdrawal of Public Land,
Nellis AFB Bombing Range

We have reviewed the Draft Environmental Statement, Department of Defense, on the proposed withdrawal of public land for the Nellis Air Force Bombing Range.

In addition to our comments to follow, I have authorized Mr. Roger Johnson to reply directly to your office. Mr. Johnson is a former Refuge Manager of Desert National Wildlife Range and was until recently coordinating the Fish and Wildlife Service's participation in Washington D. C. Unfortunately, lack of time has not permitted consolidation of his comments.

Our comments are as follows:

General: Many of our comments are directed at what the draft statement does not say. We believe the draft is overly vague and leaves a great deal of assuming to the reader. The South Range is Desert National Wildlife Range (DNWR) and use of this range is controlled under the memorandum of understanding. The MOU should be the language guidance in referencing activities in the South Range. In addition, we are disturbed as to the impact on the proposed wilderness portion of DNWR open to the public. This aspect should be addressed in the draft and clarified as to types of uses and where these uses will be allowed.

Specific Comments:

6-1 | Page 1-29, last paragraph. The TFWC projects sortie increases in excess of 100% over 1977 for the 474 TFW. The why is explained because of less fuel capacity but where these sorties will be taking place should be addressed.

6-2 | Page 1-32, 4th paragraph. "In general" must be deleted because MOU spells out location of targets below 3,600 foot contour line in Indian Springs Valley and below the 4,000 foot contour line in Three Lakes Valley. No targets should be above these lines!

6-3 | Page 1-35, last paragraph. Since air space has been brought up in this paragraph, we would like the military to address the use of the four MOU (Military Operating Area) especially the Alamo unit which overlays the Sheep Mountain Range. The FAA has given the AF authority to fly as low as 100 feet AGL (above ground level) in these units. This is definitely a departure from the 2,000 foot AGL spelled out in our MOU.

6-4 | Page 2-30, 3rd paragraph. We would like to see language as used in the MOU wherever possible, i.e., "in addition, Air Force will make available one period of 14 consecutive days each calendar year during the months of December and/or January when Interior will have free and uninterrupted use and access to the lands covered by this MOU to conduct a Bighorn Sheep Hunt" rather than "This requires a curtailment of Air Force activities during the hunt." Also, "State" should be possessive.

6-5 | Page 2-35, 1st paragraph. Once again airspace is mentioned and this time as all inclusive over the total wilderness proposal. It is imperative that the authority for this use be spelled out and the degree of use should be clarified as to what, where, how, and when!

6-6 | Page 2-47, 4th paragraph. States sensitive or populated areas as restricted and supersonic activity should avoid such areas. FAA Advisory 91-36A dated 7-9-74 lists National Wildlife Refuges and Ranges as typical noise-sensitive areas.

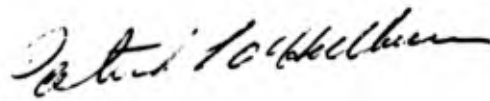
6-7 | Page 3-12, 4th paragraph. The MOU restricts flying to a minimum of 2,000 feet AGL except for landing and take-off at Indian Springs, using the approach corridor to target areas, and when delivering ordnance air to ground targets. The sentence, "Obviously, where low overflights occur, noise will have a detrimental effect on wilderness users and possibly on wildlife as well," needs explaining as it is in direct conflict with our MOU.

6-8 | Page 3-17, last paragraph. States expected supersonic aircraft operations will have a slight expansion. This does not agree with the projected sorties for 1978 and 1979 which increased over 100%. We feel that sonic boom overpressures should be expressed in decibels so the layman will understand what that paragraph means!

- 6-9 | Page 3-18, 1st paragraph. This paragraph apparently is the analysis referred to in 5th paragraph on page 2-47, where it states 4,969 sonic booms were reported during 1977. Table 1-3 on page 1-15 shows over 100% increase in sorties flown in 1977 to that of 1978 and 1979 for the 474 TFW. The Air Force should project the increase in sonic booms over that of 1977 rather than to be more than vague by stating the incidence of sonic booms will increase.
- 6-10 | Page 3-18, 2nd paragraph. States low level supersonic flights are restricted over the DNWR. This should be clarified as to where such a restriction is published and secondly, how widely is such a document circulated or made available to the pilots using any or all of the airspace above the DNWR?
- 6-11 | Page 3-18, 4th paragraph. It may be true that the limited data available does not show any altered behavior patterns due to sonic booms, however, we are aware of no data showing that behavior patterns in big game have not been altered.
- 6-12 | Page 3-18, last paragraph. Upon reading this paragraph and especially so the last sentence, we do not believe the Air Force should proceed without some sort of a commitment to set up a study designed to gather data and monitor the long-term protracted exposure.
- 6-13 | Page 3-19, 1st paragraph. The Air Force should spell out the so-called history of sonic booms over DNWR. Colonel Chuck Yeager was first to fly supersonic and that was around the mid-40's. I would suspect this area didn't hear many sonic booms until the early to mid-60's.
- 6-14 | Page 3-19, 2nd paragraph. This paragraph contradicts the last paragraph on page 3-18. The AF's conclusion that their activities would have little impact on the bighorn sheep is based upon data derived from studies with domestic animals. To our knowledge nothing has been done with wild sheep whose behavior is quite different.
- 6-15 | Page 6-1, 4th paragraph. This paragraph once again addresses the need for some sort of study of long-term effects.

- 6-16 | Page 7-1, 2nd paragraph. The "certain non-military activities are compatible" should be elaborated as to types, where, etc.
- 6-17 | Page 7-1, 3rd paragraph. This paragraph should also be clarified as should the preceding one.
- 6-18 | Page 8-2, 4th paragraph. We do not understand this statement -- "the proposed wilderness area would continue to have about the same level of noise impact." If the withdrawal were not renewed then all activity would be limited to air-to-air firing and this is restricted to 10,000 feet and above. Consequently little or no noise would impact DNWR.
- 6-19 | Page 8-2, 5th paragraph. No additional protection is provided the bighorn sheep by the military closure. To date the AF is having trouble keeping trespassers out of the target areas where they are stealing equipment, parts, and materials. As for poaching, we have had none for a long time on the Sheep Range which carries over 50% of our animals so we would doubt if this would be tried in the Pintwaters. Access in the Pintwaters is more difficult than in the Sheep range.
- 6-20 | Finally, in reading the draft we did not detect acknowledgement of impacts beyond the scope of routine operations. Two incidents that come to mind are the accidental bombing (with live ammunition) of our headquarters at Corn Creek several years ago and an extremely low "buzzing" of a refuge vehicle on the Mormon road. This latter incident required medical attention.

We certainly recognize that it is impossible to completely eliminate incidents, but the possibilities of such impacts should be recognized.


Acting Area Manager

cc: Desert NWR
Regional Director (ARW-PRO), Portland, OR
San Francisco Bay NWR

Response to Questions

6-1 The text on page 1-21 has been revised and references Table 1-3 which shows sorties for the North and South Ranges.

6-2 The MOU does spell out the contour lines in Indian Springs and Three Lake Valleys; however, the targets in Three Lakes Valley are below the 3,600 foot contour due to Air Force policy in siting targets. The terrain slope above the 3,600 foot contour at many locations in this valley is too great for adequate target siting. Therefore, the term "in general, are restricted..." more adequately describes the existing conditions. This is not to say at some time in the future, the Air Force may have a requirement to place a target between the 3,600 and 4,000 foot contour in Three Lakes Valley. If so, the requirement will be coordinated with the DNWR management. [For additional data on this MOU see reference 23.]

6-3 The Air Force does conduct aircraft training in the Desert Military Operating Area (MOA) east of the Nellis AF Range. The eastern portion of the DNWR as well as the Sheep Mountain Range are under this airspace. Operations on the Nellis AF Range (subject of this document) cannot be linked to operations in the MOA by the MOU between the Air Force and FWS; these are separate and independent actions. The MOU covers only that land and airspace of the South Range, not the entire DNWR as indicated by this comment. The commentor is directed to the Final Environmental Statement for the Tactical Fighter Weapons Center Range Complex (reference 1 for this document) for a thorough review of operations in the MOA. Applicable portions (those that apply to Range Operations) have been referenced herein and data extracted to evaluate impacts of this proposed action. The MOU does not cover the entire MOA airspace. This is a subject of continuing discussion between FWS and the Air Force, and is not germane to this document.

6-4 The MOU does discuss providing 14 consecutive days each calendar year, however, it is not necessary to provide direct quotes in order to understand the main issue of assuring safety for people involved in the bighorn sheep hunt. Stating, "... activities are curtailed during the hunt..." adequately covers this point. [See reference 23.]

6-5 The authority to use the Desert Military Operating Area was granted by the FAA. The commentor is directed to references 1 and 8 of this document for additional information on use and impacts of operations in the MOA.

6-6 The FAA Advisory 91-36A is as indicated an advisory, not a regulation. Before use of airspace is granted FAA requires an environmental analysis of the proposed action. Documents published to date by the Air Force and FWS have not indicated any significant impact from operations in the questioned airspace.

All populated areas (Caliente, Panaca, Pioche, etc) under the MOA are restricted from low level supersonic overflight. Therefore, the Air Force believes operations within the MOA are in agreement with the intent of FAA Advisory 91-36A.

6-7 Text revised. See page 3-13.

6-8 The total projected sorties over the Nellis AF Range represents a 15 percent increase over the base year of 1977. All of these sorties will not be flown at supersonic speeds, therefore, the number of sonic booms will not increase by 100 percent as indicated by this comment. The preferred unit for expressing sonic boom overpressures is pounds per square foot, however, to assist this commentor, the comparable dB values will be provided here rather than revising the text. Pages 3-19 and 20 discusses overpressures up to 5 lb/ft^2 (117dB(c)) with decay values ranging from 0.6 lb/ft^2 (95dB(c)) to 1.2 lb/ft^2 (102dB(c)) at the boom cut-off point. Physiological effects have been reported at 95 lb/ft^2 (147dB(c)), but overpressures up to 144 lb/ft^2 (151dB(c)) have been reported without injury. Review of these figures show that overpressures 28 times greater than the maximum projected for the Range have been experienced without injury. If one assumes the 95 lb/ft^2 value as a level for physiological effect, the maximum projected for the Range would be 18 times less than this value. At the boom cutoff point the overpressure would be from about 160 to 80 times less than the physiological effect value.

6-9 The text has been revised on page 3-20 to indicate projected number of sonic booms from ACM operations.

The South Range does not include all of the DNWR. Since some noise generated by sonic booms may be heard on that portion of the DNWR not coincident with the South Range, "and" is the correct conjunction.

6-10 Restrictions on supersonic flights are published in Air Force Regulation (AFR) 55-34, "Reducing Flight Disturbances", dated April 20, 1976, and AFR 50-46 Weapons Ranges, NAFB Supplement 1. Each pilot is aware of these regulations and are required to log each flight that is conducted at supersonic speeds. Supersonic flights over the Nellis AF Range Complex are restricted to altitudes above 5,000 feet AGL, therefore, any low level flights that may occur will be at subsonic speeds.

6-11 Comment noted.

6-12 Throughout the preparation of this EIS coordination has been maintained with the FWS. Data provided by FWS and that contained in their final EIS for Wilderness designation on the DNWR does not indicate aircraft operations have been a significant impact to game on the Range. The paragraph referenced by this comment indicates biological changes may occur and could be below the threshold of detection. Data is not available to evaluate low

level, long term stresses and how additive they would be to the more short term stresses induced by the local climate, disease, predators, and availability of food and water.

The primary animals on the Range are bighorn sheep, horses and burros. In terms of age structure, longevity, and reproduction success, there has been no significant changes noted in the desert bighorn sheep for a number of years. This point is also supported by the bighorn sheep hunt statistics; the above factors are evaluated in determining the number of sheep to be harvested each year. In 1976 the DNWR supported about 40 percent of the state's sheep population. Between 1952 and 1976 about 50 percent of the sheep harvested in the state occurred on the DNWR. Wild horses and burro populations on the North Range have expanded in the past few years.

6-13 Text revised. See page 3-21.

6-14 There is no contradiction in the two referenced paragraphs. The first talks about indices which could be noted in a short time period, whereas the latter concerns long term exposures and considers biological changes that could be below a threshold of detection.

Studies evaluated in preparation of this document involved captive and wild desert bighorn sheep. In fact, USFWS at Yuma, Arizona, during a period from September 1978 to March 1979 made five different observations of bighorn sheep exposures to sonic booms. Sheep reactions noted varied from no visible reaction to momentary concern.

6-15 See response to comment 6-12.

6-16 The paragraph has been changed to indicate existing types of compatible uses.

6-17 The intent of this paragraph has been included in the one immediately above and this one deleted from the document.

6-18 Air combat maneuvering training over the South Range could continue with operations down to 2,000 feet AGL. Additionally, operations in the Desert MOA could also continue. Only air-to-ground training would be eliminated.

6-19 It is the Air Force's opinion that bombing, live firing and other military activities is a deterrent to unauthorized access to the Range.

6-20 With the large number of operations occurring both day and night, there is always a potential for incidents. The relatively few that have occurred adds credibility to the need for restricting access and close coordination between users of the range. As

a matter of record, upon notification of the low overflight incident the Air Force requested the FWS employee get a medical check-up. To date no report has been forwarded to the Air Force indicating any ill effects occurred. The Air Force has installed aircraft warning lights on the Corn Creek Field Station as a measure of safety.

STATE OF NEVADA
LEGISLATIVE COUNSEL BUREAU

LEGISLATIVE BUILDING
CAPITOL COMPLEX
CARSON CITY, NEVADA 89710



LEGISLATIVE COMMISSION (702) 885-5627

KEITH ASHWORTH, *Senator, Chairman*
Arthur J. Palmer, *Director, Secretary*

INTERIM FINANCE COMMITTEE (702) 885-5640

DONALD R. MELLO, *Assemblyman, Chairman*
Ronald W. Sparks, *Senate Fiscal Analyst*
William A. Bible, *Assembly Fiscal Analyst*

ARTHUR J. PALMER, *Director*
(702) 885-5627

FRANK W. DAYKIN, *Legislative Counsel* (702) 885-5627
JOHN R. CROSSLEY, *Legislative Auditor* (702) 885-5620
ANDREW P. GROSE, *Research Director* (702) 885-5637

September 10, 1979

State Director (N-921)
Bureau of Land Management
Room 3008, Federal Building
300 Booth Street
Reno, NV 89509

Dear Sir:

At its meeting of September 5, 1979, the Nevada Legislative Committee for the Review of Federal Regulations considered the Draft Environmental Statement for the proposed public land withdrawal for the Nellis Air Force Bombing Range.

7-1 | After committee discussion and staff research, this committee recommends that reasonable multiple use considerations be given to selected portions of the withdrawal. Activities such as mining, agriculture, grazing and recreation are some of the multiple use activities which could possibly be permitted in a few selected localities.

This committee would appreciate your thoughtful consideration of this request when specifying the conditions for the continuance of Air Force operations on the Nellis withdrawal.

Sincerely,

A handwritten signature in cursive script that reads "Dean A. Rhoads".

Assemblyman Dean A. Rhoads
Chairman, Legislative Committee
for the Review of Federal
Regulations

DAR:jlc

cc: Governor Robert List
Attorney General Richard Bryan
U. S. Senator Paul Laxalt
U. S. Senator Howard Cannon
U. S. Representative James Santini
Mr. Julian C. Smith, Jr.

Committee Members:

Senator M. H. Sloan, V.C.
Senator N. Glaser
Assemblyman K. Hayes

Response to Questions

7-1 The Air Force has evaluated the potential use of the Nellis AF Range for mining, grazing and recreation. Due to the safety hazards and classified nature of many of the operations, these types of activities are not compatible.

FEDERAL COMMUNICATIONS COMMISSION

WASHINGTON, D.C. 20554

SEP 10 1979

IN REPLY REFER TO:
7810-02

State Director (N-921)
Bureau of Land Management
Room 3008
Federal Building
300 Booth Street
Reno, Nevada 89509

Re: Draft Environmental Impact
Statement for Nellis Air
Force Bombing Range in Nye,
Clark & Lincoln Counties,
Nevada

Gentlemen:

This replies to the Bureau of Land Management's request that the Commission review the above-referenced Draft Environmental Impact Statement and make any comments which we think appropriate.

8-1 | A review of this document indicates no reference to the construction of communications facilities, which is this Commission's major area of regulatory concern. We are, therefore, unable to offer any comments as to potential environmental effects from radio communications facilities which may be involved in this project because no discussion of such facilities is included.

Sincerely,

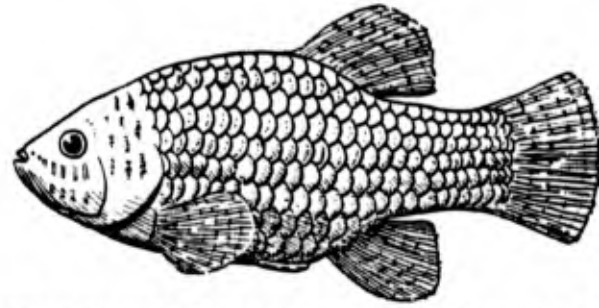


Carlos V. Roberts
Chief, Private Radio Bureau

Response to Questions

8-1 The existing communication systems including the analog microwave and air-to-ground radio system are being modified to provide a digital microwave system. The activity is a part of the communications upgrade program described in the Final Environmental Statement for the TFWC Range Complex (reference 1 to this EIS). Authorized frequencies in government bands have been obtained through the area frequency coordinator. Since this is an ongoing activity, the environmental consequences were considered to be a part of the existing environmental and land impacts included in Table 1-2a and b.

Desert Fishes Council



"Dedicated to the Preservation of America's Desert Fishes"

407 West Line Street
Bishop, California 93514
September 11, 1979

State Director (N-921)
Bureau of Land Management
Room 3008, Federal Bldg.
300 Booth Street
Reno, Nevada 89509

Re: 1792, Nellis DEIS (N-921.2)

Dear Sir:

We have reviewed the D.E.I.S. for the proposed land withdrawal associated with the Nellis Air Force Bombing Range and feel there are no significant objections. Most of the area has already been impacted by previous use and those portions of the Desert National Wildlife Refuge under consideration, for the types of use proposed, will not pose any major adverse effects on protected wildlife.

Thank you for providing us with the opportunity to comment.

Sincerely,

E. P. Pister
Secretary



United States Department of the Interior

BUREAU OF MINES

2401 E STREET, NW.

WASHINGTON, D.C. 20241

September 11, 1979

Memorandum

To: Director, Bureau of Land Management
Attn: Robert Scherer (321)

Through: Assistant Secretary--Energy and Minerals

From: Director, Bureau of Mines

Subject: Draft environmental statement, Bureau of Land Management and Department of the Air Force, public land withdrawal for the Nellis Air Force Bombing Range, Nye, Clark, and Lincoln Counties, Nevada

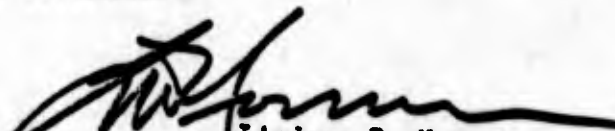
SEP 19 1979

10-1

As indicated in our April 6, 1979, memorandum in review of an earlier draft of this statement, we echo our concern over use of the word "nominal" on page 5-4. Whether intended or not, the inference is that there is little or no potential for mineral resources which, in fact, has not been established. The purpose of the recommended mineral resource study (page 2-34) is to evaluate that potential. Therefore, we strongly recommend that the second sentence of the Mineral Resources paragraph (top of page 5-4) be deleted from the final environmental statement.

10-2

We also wish to repeat our concern for lack of a specific timeframe for negotiating and conducting the recommended Level II mineral resource study (page 3-12). Absence of a mineral assessment (or a commitment and agreement to conduct such an assessment) in the withdrawal process would seem contrary to the statutory requirements mandated by the Federal Land Policy and Management Act of 1976 [PL 94-579, sec. 204 (c) (2)(12)]. We believe that commitment to a mineral resource assessment should be made a part of the final environmental statement and that steps be taken to negotiate with the Bureau of Mines (and the Geological Survey) for conducting the mandated assessment.


Lindsay D. Norman
Assistant Director



Response to Questions

10-1 The environmental statement preparation team extends an apology to the Bureau of Mines. As requested in their April 6, 1979 letter we did remove the word "nominal" from the mineral discussion in Chapter III but failed to do so in Chapter V. The second sentence has been changed to assure a premature conclusion is not made.

10-2 The National Environmental Policy Act requires documentation of potential impacts based on reasonable available data. The USGS/BM mineral report states some areas of the Range may have potential for mineral resources. The report indicates there is currently not enough data to state the magnitude of the potential reserve and that additional surveys would be required to determine if the potential does exist. Although this type qualifying statement could be applied to any land parcel, it is being considered here based on the past history of mining activity in Southern Nevada. The Department of Air Force and Department of Interior have been working for some time to determine the level of mineral study required to support military land withdrawals. Once these decisions are made, the Nellis AF Range will be available for surveying. From an environmental standpoint, this document shows that if mineral resources are on the Range, they will not be altered or impacted by either the Air Force or DOE activities. Also see response to comments 3-1 and 4-2.



United States Department of the Interior

• ADDRESS ONLY THE DIRECTOR,
FISH AND WILDLIFE SERVICE

FISH AND WILDLIFE SERVICE
WASHINGTON, D.C. 20240

SEP 17 1979

MEMORANDUM

TO: Director, Bureau of Land Management (321)
Attention: Robert Scherer

FROM: Director, Fish and Wildlife Service

SUBJECT: Review Comments on the Draft Environmental Statement
on the Proposed Public Land Withdrawal for the Nellis
Air Force Bombing Range, Nye, Clark, and Lincoln
Counties, Nevada (DES-79-47).

Enclosed are our formal comments on the subject document. While most of the comments are directed toward the impacts on Desert National Wildlife Range, FWS, the impacts upon lands under the jurisdiction of BLM are also addressed.

Comments from our Regional Office, Portland, Oregon, will be transmitted directly to the BLM State Office in Reno.

Any questions concerning the Washington Office comments should be directed to Wallace Evans, Division of Refuge Management, Main Interior Building, phone 343-4047.

Enclosure

Lynn G. Greenwalt

COMMENTS ON NELLIS AIR FORCE BOMBING
RANGE DEIS

p. ii Summary
2. Brief Description of Action

//-1 | The second paragraph should separate the North and South ranges with respect to the mileage of roads to be repaired. This would aid the reader in assessing the impacts on these two areas.

3. Summary of Environmental Impacts

//-2 | Paragraph 1, last half of second sentence should be reworded to reflect that wildlife management opportunities as well as recreational uses will be foregone on Refuge lands should this proposal be granted.

Chapter I

p. 1-1 Proposed Action

//-3 | Paragraph 2 should include a narrative describing the "minor adjustments" to the South Range, and the text should include a map showing the current boundary and the proposed changes. Also the narrative should state the reason that necessitates these adjustments.

p. 1-2 Figure 1-1, Vicinity Map

//-4 | This map should show the boundary of the Desert NWR as well as the boundary of those BLM lands affected by this proposed action. This visual representation will aid the reader in determining the effects of the proposed withdrawal.

*Note: This comment shall hold for any map in the text that fails to depict FWS and BLM lands with respect to the proposal.

p. 1-6 Federal Land Policy and Management Act of 1976 (FLPMA) Considerations

//-5 | This paragraph should be reworded in order to indicate that FLPMA is being considered for those lands under the jurisdiction of the BLM, and the Engle Act is being considered as it applies to FWS lands.

p. I-15 Table 1-3, Nellis AF Range Utilization by Sorties

//-1 | The number of sorties should be separated between the North and South ranges. This will aid the reader in determining the impacts on these two areas.

p. 1-17 Air Force Utilization of the Nellis AF Range

//-1 | Paragraph 3, the quantity of ordnance dropped should be separated by ranges, in order to better assess the impacts on these areas of different jurisdiction, mission and goals (multiple vs. dominate use lands).

p. 1-25 Future Developments and Operations

//-6 | Recent events in National defense have led to the approval for the deployment of the MX missile system. Are any of the lands of the proposed withdrawal currently being considered for utilization under this system? If so, this should be addressed in this statement and the most current information should be used at the time of printing of the FEIS.

p. 1-28 Table 1-6, Future Projects for the Nellis AF Range

//-1 | Road repairs should be separated by ranges in terms of scope and estimated impact acreage.

p. 1-32 Fish and Wildlife Service - Desert National Wildlife Range

The third paragraph should be reworded to reflect the current MOU that states that target facilities are restricted to lands below the 3,600 foot elevation contour line in the Indian Springs Valley, but are restricted to lands below the 4,000 foot elevation contour line in the Three Lakes Valley.

//-7 | Also the MOU describes areas of impact, where air-to-ground ordnance will be confined; some of these areas overlap the proposed wilderness. This information was generated by comparing the description presented in the MOU with the wilderness proposal map dated August 1973. These areas are as follows:

Indian Springs Area

(a) South Area

T15S-R56E N 1/2.

-SW portion of Sec. 7.

-WSW portion of Sec. 18.

- (b) North Area
T12S-R57E.
-NE portion of Sec. 7.

Close Air Support Range
T13S-R55E.

-The E portion consisting of a strip approx. 2 mi. wide and 5 mi. long.

T14S-R55E

-The area described as, commencing at the NE corner, thence west approx. 2 mi., thence south to the Spotted Range Road, thence along said road to the point of origin.

Desert Valley Impact Area
T9S-R56E.

- Sec. 6.
- Sec. 18 E 1/2.
- Sec. 19 E 1/2.

These discrepancies should be investigated and the MOU and/or the proposed Wilderness Area land descriptions should be corrected to reflect the actual areas involved in each use.

p. 1-32 Bureau of Land Management Wild Horse Management Area

//-8

The text under this heading and throughout the document should be changed to consistently refer to this area under its proper name of Wild Horse Management Area rather than Wild Horse Range.

p. 1-34 Figure 1-9, Department of Interior Land Management Area

This map should better represent the areas of the DNWR that are proposed wilderness areas, especially those areas excluded from the proposal, these areas should be included on this map; noted are:

//-9

1. Emigrant Valley - located in the NW corner of the South Range, a classified Federal Government area or Federal Government related area.
2. Desert Valley - located in the NE corner of the South Range, an AF impact area of 2,600 acres.
3. Roads through the area including, Alamo Road, Morman Well Road, Gass Peak Road, Indian Springs - Groom Lake Road, and the Cabin Springs Road.

Chapter IIp. 2-30 Recreation

//-10 | Paragraph 3; it should be stated here that this curtailment of Air Force activities that allows for the sheep hunt is spelled out in the current MOU.

p. 2-35 Wilderness

//-11 | Paragraph 1 should be restructured to reflect that the air space utilization of those lands covered in this withdrawal are generally restricted to altitudes above 2,000 feet AGL, and that this air space only covers the western portion of the proposed wilderness area. The eastern portion of the wilderness area airspace is utilized by the Air Force but is not addressed in this proposed action but rather was granted by the FAA as a MOA with altitude restrictions below 150 ft. AGL.

p. 2-47 Hazards and Safety

//-12 | The projected "modest increase" of sonic booms in paragraph 4 should be quantified and separated with respect to the ranges.

Chapter IIIp. 3-5 Soils and Watershed

//-1 | Paragraph 2 should separate the road activities into the North and South ranges.

p. 3-8 Wildlife

//-13 | This section lacks quantification and description of detailed impacts to the wildlife communities or their habitat noise and sonic boom impacts should not be separated from the other impacts under this heading.

p. 3-10 Recreation

//-14 | The impact of sonic booms and aircraft noise on recreational users of the DNWR should be included.

//-14 | It should be stated in paragraph 2 that the AF agrees to curtail its activities on the range in order to accommodate the annual bighorn sheep hunt. This is agreed to in the current MOU.

p. 3-12 Wilderness

//-15 | The FWS wilderness proposal of much of the South Range on DNWR should be addressed here. It should be pointed out that as a proposed wilderness area the FWS must manage this land as "de facto" wilderness in order to prevent activities on this area which may alter its wilderness character.

p. 3-18 Hazards and Safety

//-16 | Paragraph 1 should quantify the increased utilization of the ACM airspace. Also outdoor recreationists do not want to hear sonic booms in a wilderness area. Not only do sonic booms occur on the range and impacts those recreationists adjacent to the range, but this public use area is overlaid by a MOA in which military aircraft are permitted to operate as low as 150 ft. AGL.

p. 3-19 | In paragraph 1 the stable bighorn population and density does not necessarily reinforce the hypothesis that AF activity has little impact on reproduction. This stable population may not be stationary (the age structure may be changing). A bighorn ecological study should be undertaken.

//-17

Chapter Vp. 5-1 Soils and Watershed

//-18 | The first paragraph should read, "Approximately 7,600 additional acres of land area ...". Soil is not measured in acres.

Chapter VIp. 6-1 Relationship Between Local Short-Term Uses of Man's Environment and Maintenance and Enhancement of Long-Term Productivity

//-19 | Paragraph 6 should include the idea that any human on-ground activity, such as search and rescue, fire suppression, wildlife management, hunting, or range maintenance must be viewed as a safety threat.

Chapter VIIIp. 8-2 No Action - Environmental Impacts

//-20 | If the AF continued air-to-air training under the no-action alternative as stated in paragraph 4, the noise effects would in fact decrease on the range due to the lack of air-to-ground training on the area of the South range.

Response to Questions

- 11-1 Table 1-3 and 1-6 have been revised to show sorties and road improvements by range, respectively. The Air Force does not maintain historical records of the amount of ordnance dropped on each range.
- 11-2 The last half of the sentence in the referenced paragraph is redundant and has been deleted. The first half of the sentence includes recreation and wildlife management.
- 11-3 Minor boundary adjustments may be seen on figure 1-2. All of the adjustments occur on the DNWR and were requested by FWS to remove the Alamo Road from within the South Range boundary in order to facilitate their management objectives.
- 11-4 This figure is intended to highlight the Nellis AF Range. Figure 1-9 provides the necessary visual representation for Department of Interior land management areas on the Range.
- 11-5 At this data, no decision has been made on which legislation will apply to the Air Force proposed withdrawal, therefore, the document discusses both the FLPMA and the Engle Act.
- 11-6 The Nellis AF Range is not being considered as a potential site location for MX.
- 11-7 The Air Force ground-use areas on the DNWR and South Range are defined in the MOU signed by the Air Force and FWS in 1962. Subsequent decision of FWS in 1974 to propose the DNWR for wilderness consideration was reviewed by the Air Force and no discrepancy in the boundary was discovered. The Air Force will work with FWS to make the wilderness proposal boundary agree with the MOU. Also see response to comment 6-2.
- 11-8 The proper title is Wild Horse Range.
- 11-9 Figure 1-9 has been revised to show the questioned valleys and roads.
- 11-10 See response to comment 6-4.
- 11-11 See response to comment 6-3.
- 11-12 See response to comment 6-9.
- 11-13 Discussion of impacts to wildlife habitat is provided in the vegetation section. It is recognized the format for the EIS does not facilitate complete discussion of all potential impacts under one section without being redundant in others. In these cases, the reader is referenced to other sections for additional discussion.
- 11-14 See response to comment 6-4.

11-15 The Wilderness Section has been changed to discuss management of the area as a "defacto" wilderness.

11-16 See response to comments 11-1 and 6-7.

11-17 See response to comment 6-12.

11-18 The text has been modified on page 5-1 in accordance with this comment.

11-19 Text revised on page 6-1.

11-20 See response to comment 6-7.

SPICER MINING CO.
BEATTY, NEVADA 89003
(702) 553-2388

September 18, 1979

OPEN LETTER

Department of the Interior
Secretary Cecil B. Andrus
Washington, D.C. 20240

(Submitted as testimony this
day at hearing in Las Vegas)

Gentlemen:

We urge a complete rejection of the Draft Environmental Impact Statement (INT DEIS 79-47), proposing more public land withdrawal adjacent to both the northern and southern Nellis Air Force Bombing Ranges in Nye, Clark and Lincoln counties, state of Nevada.

The credibility of this faceceous document is cancelled at once by the disclaimer appearing as the format, wherein the co-authors, (BLM, Dept. of Interior and Fish & Wildlife Service), with the Department of Air Force, "take no position" in regard to this material, (Chap. 10), which meets DOD and DCE requirements and by their own admissions are cooperating with the DOD and DCE under the cloak of National Security to protect their own interests, which we charge are tantamount to genocide.

The misleading and outright deception in the preparation of this Environmental Statement are further reflected by the listing of the notification of interested parties, which include the non-existent Mayors of Beatty and Tonopah. It is, in our opinion, compiled with dangerously misleading fabrications. After a complete study of it, the facts indicate beyond any reasonable doubt that unless the Air Force lease is limited in scope to their current practices, (electronic warfare and training missions), the lands of Nye, Clark and Lincoln counties will indeed become the garbage dump for nuclear waste from around the entire globe.

Though some additional employment is at stake and some quick business profits, (housing, leasing, development, etc.,) are in jeopardy, the repercussions and potential physical disasters that this lease would afford are not worth the lives of the citizens or the guarantee of safety to future generations. Are we

to conclude that life and property are considered expendable by the intentions written into the environmental document which freely allows vast areas of public land to be rendered uninhabitable until the end of time?

We believe in National Security, but we have taken note of the disasters in other areas, ie: "non-existent" nerve-gas in Utah and "harmless" radioactive fall-out in Northern Nevada: and are fully aware of the practices of some in our government who use any method and all the psychology they can muster to influence their bidding or to conceal the true facts from the population. We cannot allow our public lands to be used as "guinea pig" for various experiments of agencies who conceal their actions behind patriotism and the protection of America's soil. We object to and will not accept the clever maneuvering of deceit and general callousness to the health and welfare of thousands of Nevada residents and millions of tourists.

By federal statute, the BLM is charged with the responsibility of protecting the rights and intents of the populace on public land. For them to betray this lease of nearly three million acres would be a traitorous sell-out to the people in the involved areas, akin in scope only to that of the events that led to Holocaust.

Sincerely,

Jim and Effie Spicer

To substantiate our contentions the following is submitted and referred to:

1. Draft Environmental Impact Statement—Management of Commercially Generated Radioactive Waste (DOE/EIS-0046-D summary of 10 volume set of complete report. Hearing Oct. 8-9, San Francisco)
2. Proposed charter of FBI "You cannot protect people's privacy or rights from intrusion where there is no accountability for actions to anyone outside the agency" (Federal Public Defender Ken Cory)
3. Department of Justice letter concerning enforcement procedures of agencies, "absolutely no authority to interfere"
4. Court actions regarding EPA "regulations questioned and unsupported by adequate data"
5. Water contamination projected
6. Arizona tritium problem

In conclusion, we request the environmental impact statement be completely rejected and new studies of non-contradictory and credible styles be presented, with comments and statements included from all fields of those who will be affected.

Spicer

Contaminated wells are found three miles from nearest nuclear device. NTS says the flow rate is one inch per year, thus, since 1951 the contamination should have traveled twenty-eight inches away from device site. However, a well three miles from a device site shows radiation level above all "standards". The flow rate on the known contamination flow is 0.11 miles a year.

Therefore, contamination will start to show no later than:

12-2

Community	In the Year	Years from Now (1979)
Mercury	2132	154
Lathrop Wells	2178	199
Beatty	2206	227
Johnnie	2269	472
Pahrump	2451	472
Amargosa Farm Area	2251	272

Proposed charter rec

9/11/64
Sen. Paul Laxalt opposes the proposed FBI charter because it leans too far to protect privacy and knocks out the teeth from law enforcement.

At the other end of the scale, Federal Public Defender Ken Cory feels it is a mistake for anyone to think this document will protect the rights of privacy or other rights.

U.S. Attorney Mahlon Brown supports the charter's concept setting forth one standard of justice, removing foggy areas for agents and stopping arbitrary acts of individual agents.

Defense attorney Oscar Goodman finds it a fairly benign bill, but is disturbed by the emphasis placed upon the use of paid informants, which he thinks is a sad commentary on our investigative system.

Assistant U.S. Attorney Lawrence Leavitt believes the charter strikes a balance between civil liberties and law enforcement, but would like to see more leeway in the use of investigative demands.

This same diversity of opinions is expected to be mirrored in Congress when debate on the bill starts.

A spokesman for Laxalt said the senator will not support the bill in its present draft. He wants it re-written and amended so that the FBI can launch full investigations rather

than be limited to inquiries in particular situations.

A distinction between the two is drawn in the charter and certain investigative techniques are limited to full investigations.

For example, the use of investigative demands for financial records is limited to investigations, and can't be used during inquiries.

Leavitt finds that provision a hindrance in public corruption, racketeering and white collar crime cases. "Because of the difficulty in detecting these types of crimes without access to books and records, by denying the use of the investigative demands during the inquiry, it makes it harder to detect if a full scale investigation is necessary. In corruption cases, you don't have complaining witnesses to work with. The witnesses are paying off somebody because they are getting a benefit, and they are not about to expose their own culpability. We need access to books and records during even the preliminary investigation."

Yet except for this one instance, Leavitt doesn't believe the document will shackle law enforcement officials.

Laxalt also believes the charter is not well organized or well written. Cory tends to agree on that point,

finding the charter "vague and ambiguous."

In Cory's opinion, an FBI agent would find the guidelines confusing in some instances.

"The problem with these provisions is — who is going to interpret the guidelines? And the FBI leaves it up to the FBI."

Cory would like to see some watchdog set up to oversee the FBI, which is made accountable to Congress — but no mechanism is established setting forth how this accountability will be enforced.

"You cannot protect people's privacy or rights from intrusion where there is no accountability for actions to anyone outside the agency," Cory complained. "Our experience with wiretaps in history showed that accountability to a higher up in the agency will not prevent some serious lapses."

One section of the charter allows the FBI to ask persons who are protected by a legal privilege of confidentiality to act as informants. Among those who may act as informants are licensed physicians, attorneys, practicing clergy or members of the news media.

"This is nonsensical," Cory says. "You take someone in a position of confidentiality, say that you are not

use this

Views mixed reviews

asking them to breach this legal obligation of confidentiality, and then ask them to act as informants. This is an inroad into an area of life where we recognize there ought to be confidentiality. It's bad for society to take people in these positions and set up statutory frameworks which would indicate their confidentiality is not being kept."

Goodman's main point of contention also dealt with the use of informants, particularly paid informants. "The bill recognizes how important informants are to the FBI and the bill recognizes the kinds of problems the use of informants can create — and therefore more time is spent upon urging particularity of informant activity than any other area."

"But informant information is usually unreliable, it is purchased and is not cloaked with respectability," Goodman said.

"Other means of investigation which are more reliable are minimized in this charter, such as surveillance and electronic detection. It surprised me how little attention was given to regular investigative techniques — which I find a sad commentary on our investigative system. The traditional techniques are minimized and the use of informants, which I believe to be almost

anti-American, that's maximized."

During his defense of Jamiel Chagra in Texas on narcotics charges recently, the government put five informants on the stand to testify. "These five informants were getting as much as \$1,000 a week (as government informants) and all were engaged in criminal activity," Goodman recalled.

"This emphasis on informants scares me."

A recent internal audit found that 23 FBI agents using informants in nine offices did not completely understand guidelines controlling the use of informants.

The broadened scope of investigative demands doesn't create a problem for Goodman because "the grand jury is just being used as a guise now to accomplish the same end. They're just playing with semantics."

Brown is pleased that the charter will establish a consistent standard of principles and guidelines for FBI agents.

"No longer will you have some policeman sitting around thinking 'I've always wondered about so-and-so, let's investigate him.' Under these outlines, there must be a basis of facts or circumstances, not just speculation or suspicion about some-

one, in order for agents to investigate," Brown said.

The provisions for recordkeeping are also supported by Brown. The bureau is forbidden from gathering information and keeping files on political or dissident groups, unless they are suspected of criminal or terrorist activities.

Brown particularly approves of the section which requires the FBI to protect demonstrators, and make sure they are allowed to meet without interference during public rallies.

"We're in the business of catching crooks, not political dissidents," Brown said. "The record-keeping will protect those people who participate legally, assuring them their right to dissent openly and publicly, free of police probing as long as the dissent is not illegal."

But all those interviewed agreed that basically, the new charter simply codifies the existing practices and principles of the FBI.

Goodman disagrees that it will even be hotly debated in Congress. "It just doesn't have the sex appeal of something like the death penalty."

—Jane Ann Morrison

Tritium sealed in barrels

TUCSON, Ariz. (AP) — A large amount of radioactive tritium has been sealed in barrels to avoid radiation emissions from a manufacturing plant in a mixed residential and business area, state officials say.

The packing was done Monday and Tuesday by workers for the Arizona Atomic Energy Commission and the American Atomics Corp. The material was packed under a Superior Court order that the company and the state take steps to prevent further radiation emissions.

Four thousand broken and leaky glass tubes filled with 400,000 curies of tritium were packed. A curie is a measure of radioactive substance and is roughly equal to one gram.

The packing was accomplished with little radiation emissions, said Lynn FitzRandolph of the state atomic energy commission. He said 16 curies of radiation were released in the process compared with daily releases of up to 700 curies from the plant last year.

The American Atomics plant was closed in June when state officials alleged it was emitting excessive amounts of radiation. In July, the company gave up its state license in the midst of state hearings on the allegations.

It has not been determined yet how the tritium will be shipped out of state but officials said the 55-gallon drums are unsuitable for that.

American Atomics has applied in the state of Tennessee to store its tritium at a federal laboratory until it sets up operations elsewhere. The company has applied for a license in Nevada, with hopes of opening a plant in North Las Vegas.

Next, Nevada?

Tucson faces tritium fight

TUCSON, Ariz. (AP) — Two angry Pima County supervisors were joined Monday by residents of a rural area in planning legal action to force the city to dig up 22 truckloads of radiation-exposed food buried secretly over the weekend.

Supervisors' Chairman E.S. Walker and Supervisor Conrad Joyner said they would go to court and possibly would ask that the food be dug up and moved. Residents of the Sahuarita area near where the food was buried Saturday night said they planned similar action.

Under Superior Court order, the city buried the \$300,000 worth of perishable food in a 30-foot-deep pit in the remote desert 25 miles southeast of downtown Tucson.

The food was from the Tucson Unified School District central kitchen, where it had been exposed to radiation from tritium used at the nearby American Atomics Corp. plant. The city and the county had refused to dispose of it so the school district got the court order.

"I just can't believe that two responsible governments would act like this," Joyner said of the city and the school district. "They're worse than sneak thieves."

Court gives school okay to bury radioactive food

TUCSON (UPI) — The Tucson Unified School District will be allowed to dispose of \$316,000 worth of tritium contaminated foodstuffs at an unspecified City of Tucson landfill, Pima County Superior Court Judge Jack T. Arnold ruled Wednesday.

After the city said it would not allow the district, the state's largest, to do so without a court order, Arnold made good his promise of Tuesday and gave the city seven days to allow the district to dispose of the radiation-tainted perishable and non-perishable items stored at the district's central kitchen.

"The city will not appeal," Robert Herach, chief city prosecutor on the case said. "The court found the food to be neither hazardous nor radioactive waste."

Arnold ruled the school district would suffer irreparable harm if it was not allowed to get rid of the foodstuffs which have sat in its kitchen since it was closed in June because of tritium contamination from the nearby American Atomics Corp. Plant.

Church sues Atomics

TUCSON (AP) — A second damage suit has been filed against the American Atomics Corp. in connection with the release of radiation from its plant in a mixed residential and business neighborhood.

The Roman Catholic Diocese of Tucson filed suit in Superior Court, asking for unspecified damages for closure of the St. Ambrose Church swimming pool because of high radiation levels in the water.

The suit asks for compensation for lost business at the swimming pool and for loss of good will. It alleges American Atomics was negligent in handling "ultra-hazardous radioactive material" at its plant less than one block from the pool.

The pool was closed for most of June after its water was found to contain 51,000 picocuries of radiation in each liter of water.



COMPLETE
CLOSING
STOCKS

Las Vegas

REVIEW-JOURNAL

NEVADA'S LARGEST AND MOST COMPLETE NEWSPAPER

TRAILBLAZER LAS VEGAS, NEVADA, TUESDAY, SEPTEMBER 11, 1979

LV evacuation plan janded

CARSON CITY (UPI) — The state Civil Defense Agency Monday received approval to accept a \$36,000 federal grant to prepare a plan to evacuate Las Vegas in case of emergency, despite comments the proposal was a waste of money.

The agency appeared before the Legislative Interim Finance Committee to get approval to accept the federal money.

Under a new voting procedure, the finance committee failed to approve the grant request. But it also did not reject the grant. Civil Defense can receive the money if there is no further committee action within 45 days.

The Legislature in 1977 and 1978 refused to allow the agency to spend federal money for an evacuation plan.

But Civil Defense Director Louis Murphy said an evacuation plan was needed because Nevada is the only state with a nuclear testing site; it is one of three states with a nuclear waste dump; it has one of the largest ammunition depots in the nation at Hawthorne; and now there is the possibility the MX missile system might be in eastern Nevada.

The present evacuation plan was prepared 17 years ago and is a "fiasco," Murphy argued.

Sen. Floyd Lamb, D-Las Vegas, said he heard the same testimony 20 years ago and "nothing ever gets done." He said if an emergency erupted in Las Vegas,

"Everybody would be going in every direction on their own. It's a waste."

However, Assemblyman Alan Glover, D-Carson City, said a railroad explosion in Las Vegas could end up killing or injuring added persons without a plan to use in emergency.

Murphy said the plan would be confined to Clark County and would have to be updated each year.

Assemblyman Peggy Cavnar, R-Las Vegas, said she initially voted against the money in the Legislature, but since then has read the report by the ad-hoc committee on earthquake dangers in Nevada. She said she now supports drafting an evacuation plan.

Murphy said when Skylab was scheduled to plunge to earth, he had calls from all over the state asking for advice. And he said the nuclear incident at Three Mile Island shows the need for an evacuation plan.

DOE presents nuclear overview to commission

An overview of the U.S. Department of Energy's nuclear-related activities at the Nevada Test Site was presented Wednesday to the Clark County Commissioners.

Commissioner Thalia Dondro said the presentation was made in response to her questions about nuclear waste and radioactive fallout.

She added her main concern was about the transportation of wastes through the county.

"Based on what was said here, I think they are taking every precaution they can in transporting the wastes. However, I'm still not keen on the idea of trucking them across Clark County and I think they should pursue other methods of transportation such as flying them in," Dondro said.

DOE officials explained which are defense-related, the methods of burial and some of the concerns about the nuclear operations.

Among the concerns being studied is the possibility of future volcanic activity on the test site.

9-67

NTS water polluted?

RENO (UPI) — An associate professor at the Desert Research Institute says studies show radiation from underground nuclear testing may have reached the water-tables at the Nevada Test Site.

But Dr. Michael Campana said this week there's no reason to fear the water will be carried underground to population centers. He said it would take many thousands of years and other factors before the underground water supplies could be contaminated.

Campana suggests more research is needed to determine if there is a larger problem involved. His remarks were made to a meeting of the Nevada Water Pollution Control Association convention.

He said in 1974, tritium was discovered in a well dug test site.

1,500 feet from an underground test conducted in the northwest corner of Yucca Flat.

He said the levels of radiation found were "higher than the maximum permitted concentrations allowed for public water supplies." But he added the levels were within the amounts allowed in areas with restricted public access, such as the test site.

Forewarned is safer than hindsight

Response to Questions

12-1 The Air Force has attempted to document, as accurately as possible, the current and future operations on the Nellis AF Range. Continued withdrawal would be for developing ordnance and training military personnel in procedures to effectively use the ordnance and weapon systems. Any other activity must be reviewed by the Air Force, BLM and/or FWS, with the proponent of the action. These agencies are currently working with DOE in consideration of their request to conduct exploratory studies of the Yucca Mountain geology to determine if it is suitable for an underground nuclear waste repository. Should the studies show favorable conditions, it may be necessary to modify the withdrawal in the Yucca Mountain area. The need for a nuclear waste facility in this area would have to be weighed against the documented military need and future use. As required by the National Environmental Policy Act of 1969, any decision to establish a nuclear waste facility at Yucca Mountain must be made known to the public and an environmental impact statement prepared before the decision is made. The public is an integral part of the environmental documentation process, therefore, the action could not be hidden behind a "national security" determination.

12-2 In the environmental statement for the Nevada Test Site dated September 1977 (reference 3 to this EIS), it was cited that groundwater velocity was estimated between 7 to 250 feet per year beneath Pahute Mesa with the most acceptable value being about 15 feet per year. Water from sites of Pahute Mesa underground tests could not leave Nellis Air Force Range for more than 1000 years. The velocity of the groundwater which would be in the range of one inch per year is that estimated for the downward flow through the bedded and zeolited tuffs under the Yucca and Frenchman Flats on the NTS and into the Paleozoic Aquifer. Once the water reaches the Paleozoic Aquifer, the NTS environmental statement estimated the fastest time to reach the Ash Meadows discharge area would be some 300 years, during which time tritium (with a 12-year half life) would decay to an insignificant value. Other longer lived radionuclides would be retarded by sorption and ion-exchange mechanisms by many thousands of years. Thus the communities of Mercury, Lathrop Wells, Goldfield, Beatty, Pahrump, and Amargosa Valley area would not experience radionuclide contamination. DOE has been unable to detect any contamination of the groundwater in 12 wells on the Nevada Test Site nor from three springs and 17 wells off site. These are sampling stations which have not been contaminated by worldwide fallout.



United States Department of the Interior

HERITAGE CONSERVATION AND RECREATION SERVICE
WASHINGTON, D.C. 20240

IN REPLY REFER TO: DES 79/47

SEP 19 1979

Memorandum

To: Division of Land Resources and Realty,
Bureau of Land Management, Washington, D.C.
Attention: Robert Scherer (321)

From: Director

Subject: Review of Draft Environmental Statement on Public Land
Withdrawal for Nellis Air Force Bombing Range, Nye, Clark
and Lincoln Counties, Nevada (DES 79/47)

As requested in your memorandum of August 6, 1979, we have reviewed the subject statement and offer the following comments.

13-1 We urge the Air Force to complete their overview of cultural resource sensitivities on the Nellis Range as soon as possible, due to the large area of potential impact and the damaging nature of ongoing training operations. Some knowledge of the general distribution, significance and condition of cultural resources on Nellis Range, particularly South Range, is essential if the Air Force is to predict and mitigate potential impacts on more than a short-term, piecemeal basis. We are pleased to see that steps are being taken to develop this data base.

Once cultural resource surveys are complete, identified sites should be evaluated against the National Register criteria in consultation with the State Historic Preservation Officer (SHPO). Sites that appear to meet the criteria and receive the SHPO's concurrence must be submitted to the Keeper of the National Register by the Air Force for an official determination of eligibility. Once determined eligible for listing on the National Register the sites will be subject to the provisions of Section 106 of the National Historic Preservation Act of 1966, as amended.

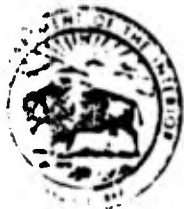
Harold Green for
Chris Therral Delaporte

cc: SHPO, Nevada

by L.F.R.

Response to Questions

13-1 The Air Force appreciates the concern of the Heritage Conservation and Recreation Service and assures cultural resource surveys will be completed as necessary. The Air Force will work with the Nevada SHPO to determine eligibility of discovered sites.



United States Department of the Interior

HERITAGE CONSERVATION AND RECREATION SERVICE
PACIFIC SOUTHWEST REGION
SAN FRANCISCO CALIFORNIA 94102

PSW 200

SEP 21 1979

Colonel John Downey, USAF
TFWC/Range Group/CC
Nellis Air Force Base, Nevada 89191

Dear Colonel Downey:

During our review of the Draft Environmental Impact Statement for the Proposed Land Withdrawal, Nellis Air Force Base Bombing Range, we noted on page 1-31 that Timber Mountain is under consideration by the Department of Energy as a site for a demonstration project of a Terminal Nuclear Waste Disposal Repository.

As you know, Timber Mountain Caldera was designated a National Natural Landmark by the Secretary of the Interior on May 31, 1973. During negotiations between your agency and the National Park Service, our predecessor in the National Landmark Program, it was agreed to not publicize the site due to your security requirements. Inasmuch as comments on Environmental Impact Statements become public, we have chosen this avenue to express our concern about the possible uses of Timber Mountain.

We urge the Department of Energy and Nellis Air Force Base to reject further consideration of Timber Mountain for a nuclear waste repository.

14-1 Timber Mountain is an unusually outstanding example of a collapsed caldera and resurgent doming and, on this basis alone, should be preserved intact. Since the Natural Landmark program represents our legacy to future generations of Americans, any actions which may result in a landmark's degradation should be avoided. Furthermore, it is conceivable that at some point in the future Timber Mountain could become excess to the needs of both the Air Force and the Department of Energy and could be transferred for park and recreation purposes. This possibility dims with the introduction of long-term nuclear waste disposal facilities.

For Federal projects which impact on a site listed in the National Registry of Natural Landmarks, Federal agencies should comply with the provisions of Section 102 of the National Environmental Policy Act of 1969 (83 STAT 852; 42 USC 4331).

We would appreciate the opportunity to review the forthcoming Draft Environmental Impact Statement relating to the demonstration project for a Terminal Nuclear Waste Disposal Repository or any other action which may impact on Timber Mountain.

If you have any questions or would like to discuss this matter with us, the project coordinator is Mr. Louis C. Penna, Chief, Division of Federal Coordination and Landmarks. Please contact him at (415) 556-2480 (also an FTS number).

Sincerely,

A handwritten signature in cursive script, appearing to read "John D. Cherry".

John D. Cherry
Regional Director

Response to Questions

14-1 DOE has decided to evaluate Yucca Mountain rather than Timber Mountain. The new study area is not within the land designated as a National Natural Landmark.



ARCHAEOLOGICAL RESEARCH CENTER
MUSEUM OF NATURAL HISTORY

UNIVERSITY OF NEVADA, LAS VEGAS
4505 MARYLAND PARKWAY • LAS VEGAS, NEVADA 89154 • (702) 739-3381

September 24, 1979

State Director (N-921)
Bureau of Land Management
Room 3008, Federal Building
300 Booth Street
Reno, Nevada 89509

Dear Sir or Madam:

This letter provides comments on the Nellis Air Force Base Draft Environmental Impact Statement issued July 27, 1979. The Archaeological Research Center (ARC) of the University of Nevada, Las Vegas, has been involved in the investigation of archaeological and historical values on the Nellis Ranges since 1975 when a report was prepared for the Navy's Project Seafarer study. In June of this year ARC completed a one year investigation involving an overview of all pertinent literature and the direct field survey of 1% of the North Range and 5% of the surface-use areas of the South Range. The study (Bergin 1979) provides base-line information on the types, distribution and significance of historic and prehistoric resources of the Nellis Military Reservation, and outlines areas of relative archaeological sensitivity for use in planning Nellis project locations. This was the study referred to in Chapter 4, page 4-2, of the draft EIS. I want to emphasize that all significant cultural resources has not been identified as mandated by public laws. Until 15 to 20% of the total area of the North and South Ranges have been intensively surveyed, an adequate sensitivity map of the type referred to in the draft EIS cannot be produced, nor can Nellis have a satisfactory understanding of the cultural resources which it is responsible for managing. As of January 1979, 297 prehistoric and historic sites and 167 isolated cultural remains have been identified within Nellis territory. Approximately 200 of these properties meet the criteria for eligibility to the National Register of Historic Places as individual sites or as site districts.

Briefly, I now will review existing federal historic preservation legislation and follow this with specific recommendations aimed at bringing Nellis Air Force Base into compliance with this body of statutes. The measures Nellis plans to employ to meet each of its lawful obligations must be addressed in the environmental impact statement.

A REVIEW OF FEDERAL HISTORIC PRESERVATION LEGISLATION

Since the passage of the Antiquities Act of 1906, the protection and preservation of "objects of antiquity" have been advocated by the federal government. However, not until 1966 with the passage of the National Historic Preservation Act (NHPA) did a system of procedures and checks come into existence to safeguard the nation's rapidly disappearing cultural properties. This Act established the National Register of Historic Places, the Advisory Council on Historic Preservation (ACHP), and the Office of the State Historic Preservation Officer (SHPO). Information concerning the location and significance of sites within areas of proposed land disturbance in a federally-related project is required by Section 106 of the NHPA. "Section 106" review is performed by the Advisory Council which supplies the federal agency with comments concerning the proposed action.

The National Register of Historic Places defines an historic property as any "building, site, district, structure or object important in American history, architecture, archaeology, or culture" (36 CFR Part 800.3). The Register functions as a planning tool to preserve representative samples of historic properties, including archaeological, prehistoric and historic resources, which are fragile, limited, nonrenewable portions of our total environment. A property listed or eligible for listing on the National Register is afforded the protection of the National Historic Preservation Act through "Section 106" review and comment requirements performed by the Advisory Council.

The National Environmental Policy Act of 1969 (NEPA), Section 101(b)4 states that to "preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment which supports diversity and variety of individual choice" is an objective of national environmental policy. To accomplish this, Section 102 of NEPA requires all federal agencies to prepare detailed environmental statements of proposals for federal actions that may effect the quality of the human environment (which includes historic properties). Section 2(a) of Executive Order 11593, 13 May 1971, entitled the "Protection and Enhancement of the Cultural Environment," requires federal agencies to locate, inventory and nominate all significant historic properties under their jurisdiction to the National Register. Section 2(b) requires that federal actions that may effect National Register eligible properties be reviewed by the Advisory Council until compliance with 2(a) is achieved.

When all measures to preserve historic properties have been attempted and still there remains some overriding need that necessitates the destruction of the resource or otherwise endangers it, the Archaeological and Historical Conservation Act of 1974 (Moss-Bennett Act) requires the federal agency to mitigate (moderate, alleviate) the adverse effects to significant historic properties, and authorizes the federal agency to expend up to 1% of the total project budget toward this goal. There are a variety of mitigation methods, for instance transporting the property or creating "open spaces" such as parks where the site can be preserved. However, the most common method for mitigating adverse effects is the scientific excavation of a site so that the data are preserved, followed by the analysis of excavated materials, and the publication of an adequate professional report relating the results to the research problem and to the regional archaeology.

The following are recommendations that will help Nellis meet its responsibilities as a cultural resource manager, which is a new role for Nellis.

RECOMMENDATIONS

1. It is recommended that Nellis Air Force Base develop and implement a Master Plan for the management and conservation of the historic (including pre-historic) properties for which it is responsible. A Programmatic Memorandum of Agreement with the Advisory Council on Historic Preservation (ACHP) concerning this Master Plan would express Air Force intent to comply with existing federal historic preservation legislation.

The Master Plan should address:

- A. National Environmental Policy Act and National Historic Preservation Act requirements including review and comment by ACHP and consultation with the State Historic Preservation Officer. A survey for historic properties should be conducted well in advance of any land altering activity including, but not limited to, areas of: target clearance; target placement (including a zone around targets that will be contaminated and disturbed by ordnance); waste munition detonation and disposal sites; road developments including new roads and the widening of existing ones; and building sites (except where previously surveyed). The Air Force should consider historic properties during project planning so as to conserve the limited resources and/or minimize any adverse effects to them;
- B. Executive Order 11593 responsibilities for further survey and inventory of the historic properties controlled by NAFB. To date only 1% of the North Range and 5% of the surface-use areas of the South Range have been surveyed.
- C. Plans for the nomination of significant sites and districts to the National Register of Historic Places. A site or district is significant, inter alia, for its ability to contribute knowledge toward answering particular research questions. The test excavations of some sites will be necessary to assess their research potential by determining the type and number of data categories each site possesses. The establishment of a basic cultural chronology for the Project Area is an immediate necessity so that NAFB will be able to develop regional research objectives against which individual site significance can be assessed. Besides chronology, many other appropriate research orientations exist.

2. It is recommended that information about historic properties and historic preservation be incorporated into Nellis E.O.D. briefings and TTR and NTS security briefings. Pilots must be alerted not to bomb and/or strafe historic period architecture as "targets of opportunity." Many people collect artifacts because they are unaware that removing the item from its natural setting destroys vital information needed to reconstruct past life-ways. It should be stressed that removing artifacts or otherwise causing

15-2 | adverse effects to sites is prohibited by federal legislation and punishable by fines and/or jail sentences. The best treatment is to enjoy the cultural resources but to leave them in place so that others can also enjoy them and learn from them.

- 15-3 | 3. Lastly, it is recommended that Nellis Air Force Base develop mutually beneficial relationships with legitimate research institutions and groups such as the Historic Archaeology Program (Departments of History and Anthropology, University of Nevada, Las Vegas), Archaeology Program (Department of Anthropology), and Southern Nevada Certification Program (Archaeo-Nevada Society and UNLV Museum of Natural History) which would permit qualified individuals and/or groups to conduct research on the Range. NAFB would require a comprehensive report on all work undertaken. This action would help Nellis Air Force Base meet its Executive Order 11593 obligations without having to expend money for the site survey, inventory and evaluation work.

15-4 | As stated earlier, Nellis is currently out of compliance with existing Federal Historic Preservation Legislation. While it would be impossible to achieve compliance in the short time prior to the approval or disapproval of the continued withdrawal of public lands, Nellis should present in the final EIS a concrete plan demonstrating the acceptance of its responsibilities to historic and pre-historic resources and the measures it will use to accomplish and remain in compliance with the relevant public laws. A specific time frame for accomplishing discrete steps toward this goal should be included with the plan. Without this demonstration of intent to comply, it is felt that approval of the withdrawal action should be denied.

Sincerely,

Dr. Richard H. Brooks,
 Director, Museum of Natural
 History, Archaeological Research
 Center

RHB/cnb

Response to Questions

15-1 The Air Force is working on a Range Resource Plan.

15-2 The Air Force has incorporated information about historic properties and their preservation in briefings provided range users and maintenance personnel. Additionally, a workshop was conducted on 10 and 11 April 1979 on cultural resource requirements and procedures for Air Force personnel working on the Nellis AF Range.

15-3 Comment noted.

15-4 The Air Force appreciates the concern of the Archaeological Research Center (ARC). The Air Force, as any federal agency, is bound by legislation to protect cultural resources and has developed policy to assure all future activities are in compliance. Until the cultural resource base on the Nellis AF Range is identified and eligible sites nominated for inclusion in the National Register, the Air Force has committed to doing site specific surveys in areas where ground disturbing activities will occur. ARC has already conducted several site specific surveys to cover some of the actions discussed in this EIS. With this commitment, there is no need to delay the withdrawal.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
215 Fremont Street
San Francisco, Ca. 94105

Project #D-BLM-K11019-NV

Mr. Roger McCormack
Acting State Director (N-921)
Bureau of Land Management
Room 3008, Federal Building
300 Booth Street
Reno Nevada 89509

SEP 25 1979

Dear Mr. McCormack:

The Environmental Protection Agency (EPA) has received and reviewed the draft environmental impact statement (DEIS) titled PROPOSED PUBLIC LAND WITHDRAWAL, NELLIS AIR FORCE BOMBING RANGE, NYE, CLARK AND LINCOLN COUNTIES, NEVADA.

The EPA's comments on the DEIS have been classified as Category LO-2. Definitions of the categories are provided on the enclosure. The classification and the date of the EPA's comments will be published in the Federal Register in accordance with our responsibility to inform the public of our views on proposed Federal Actions under Section 309 of the Clean Air Act. Our procedure is to categorize our comments on both the environmental consequences of the proposed action and the adequacy of the environmental statement.

The EPA appreciates the opportunity to comment on this draft environmental impact statement and requests three copies of the final environmental impact statement when available.

If you have any questions regarding our comments, please contact Susan Sakaki, Acting EIS Coordinator, at (415) 556-6695.

Sincerely yours,

Paul De Falco, Jr.
Paul De Falco, Jr.
Regional Administrator

Enclosure

Air Comments

1. (DEIS Section 3-1, page 3-3)

16-1 | The Draft EIS gives projected aircraft emissions up to the year 1979 in table 3-2. The Final EIS should estimate aircraft activity levels and emissions up to the year 1990.

2. (DEIS Section 3-1)

16-2 | The Draft EIS does not indicate coordination with the Clark County Department of Comprehensive Planning with respect to the Las Vegas Valley Air Quality Implementation Plan. The Final EIS should address this coordination as well as determine the proposed projects consistency with the plan since all Federal actions are subject to State and local requirements with respect to the control and abatement of air pollution (Section 118, Clean Air Act of 1977).

EIS CATEGORY CODES

Environmental Impact of the Action

LO--Lack of Objections

EPA has no objection to the proposed action as described in the draft impact statement; or suggests only minor changes in the proposed action.

ER--Environmental Reservations

EPA has reservations concerning the environmental effects of certain aspects of the proposed action. EPA believes that further study of suggested alternatives or modifications is required and has asked the originating Federal agency to reassess these aspects.

EU--Environmentally Unsatisfactory

EPA believes that the proposed action is unsatisfactory because of its potentially harmful effect on the environment. Furthermore, the Agency believes that the potential safeguards which might be utilized may not adequately protect the environment from hazards arising from this action. The Agency recommends that alternatives to the action be analyzed further (including the possibility of no action at all).

Adequacy of the Impact Statement

Category 1--Adequate

The draft impact statement adequately sets forth the environmental impact of the proposed project or action as well as alternatives reasonably available to the project or action.

Category 2--Insufficient Information

EPA believes that the draft impact statement does not contain sufficient information to assess fully the environmental impact of the proposed project or action. However, from the information submitted, the Agency is able to make a preliminary determination of the impact on the environment. EPA has requested that the originator provide the information that was not included in the draft statement.

Category 3--Inadequate

EPA believes that the draft impact statement does not adequately assess the environmental impact of the proposed project or action, or that the statement inadequately analyzes reasonably available alternatives. The Agency has requested more information and analysis concerning the potential environmental hazards and has asked that substantial revision be made to the impact statement.

If a draft impact statement is assigned a Category 3, no rating will be made of the project or action, since a basis does not generally exist on which to make such a determination.

Response to Questions

16-1 The Air Force cannot project aircraft basing beyond 1985, therefore, operations beyond that date cannot be predicted. Table 1-3 and table 3-2 have been revised to show aircraft sorties and associated emissions for 1985, respectively. Differences in emission quantities shown in the draft EIS and this final EIS are due to changes in types of aircraft to be used on the Nellis AF Range and revised emission rates.

16-2 As indicated on page 9-3 of the draft EIS, the document was provided to the Clark County Department of Comprehensive Planning (Clark County Regional Planning Commission). No comments were received from the Commission during the public review and comment period. As a means of complying with this EPA comment, the Air Force contacted the Clark County Department of Comprehensive Planning again to seek comments on the draft EIS. Their comment letter dated February 26, 1980 is reproduced and included as part of the response to this EPA comment. (See page 9-83)

Federal activities are subject to state and local laws and regulations respecting the control and abatement of air pollution. To the extent that the proposed withdrawal is in compliance with such statutes and regulations, it is considered consistent with the Las Vegas Valley Air Quality Implementation Plan.

DONALD L. "PAT" SHALMY
Director
DAVID G. HOUSTON
Assistant Director



CLARK COUNTY DEPARTMENT OF
COMPREHENSIVE PLANNING
300 SO. FOURTH STREET (702) 388-4181
VALLEY BANK PLAZA • SUITE 508
LAS VEGAS, NEVADA 89101

February 26, 1980

USAF Hospital/ SGPM
Nellis Air Force Base
Las Vegas, Nevada 89191

DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)

Clark County Department of Comprehensive Planning has completed its review of the Department of the Air Force's Draft Environmental Impact Statement (DEIS) prepared on public land withdrawal for the Nellis Air Force Bombing Range in Nye, Clark, and Lincoln counties.

The DEIS was carefully scrutinized by our department's Environmental and Community Planning Divisions, and we found no significant conflict between the bombing range withdrawal and growth and land use in Clark County.

We assume that comments received from citizen interest groups, federal, state, and local government agencies concerning the adverse impacts of the land withdrawal will be addressed by the Department of the Air Force, the Department of the Interior, and the Bureau of Land Management before the renewal of the withdrawal of public land is finalized.

Sincerely,

ENVIRONMENTAL PLANNING DIVISION

Richard T. Serfas
Environmental Planner

RTS:kc

9-83

COMMISSIONERS

SAM BOWLER, Chairman • DAVID B. CANTER, Vice-Chairman
ROBERT N. BROADBENT, MANUEL J. CORTEZ, THALIA M. DONDERO, JACK R. PETITTI, R.J. "DICK" RONZONE
BRUCE W. SPAULDING, County Manager



SIERRA CLUB

Las Vegas Group of TOIYABE CHAPTER
P.O. Box 19777, Las Vegas, Nevada 89119

September 27, 1979

State Director (N-921)
Bureau of Land Management
Room 3008, Federal Building
300 Booth Street
Reno, Nevada 89509

Dear Sir:

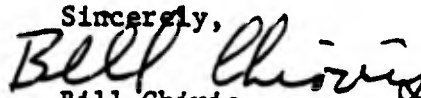
The Las Vegas Group of the Sierra Club appreciates the opportunity to comment on the DEIS for the continued withdrawal of the Nellis Air Force Range (NAFR).

Our main concern with the DEIS is what we feel to be inadequate consideration of the visual and noise effects of NAFR aircraft overflights for lands adjacent to the NAFR, especially those Desert National Wildlife Range lands lying between the Alamo road and U.S. 93 highway. These lands include all of the proposed DNWR wilderness still accessible to the public and the majority of the bighorn sheep population supposedly protected within the wildlife range.

17-1 This area is termed the Alamo Military Operating Area (MOA), one of four such areas lying outside the NAFR in which air space is utilized by aircraft enroute to or from targets on the North Range. The Alamo MOA's existence appears to be directly tied to the existence of the NAFR and if so can not logically be separated from any discussion of the environmental impacts of the NAFR itself. Yet no mention is made in the DEIS of the Alamo MOA or the other three MOAs or the special air space considerations for these areas apparently granted by the Federal Aviation Administration (FAA). For instance, the DEIS (Pg. 1-32) speaks of limiting overflights on adjacent portions of the DNWR to 2000 feet above ground level (AGL) when practical on approaches or take-offs at Indian Springs and to 10,000 feet AGL in air-to-air gunnery operations. Yet no mention is made of the permits we understand have been granted by the FAA for military air space utilization within the Alamo MOA to levels as low as 100 feet AGL. DNWR personnel we have spoken with have mentioned numerous observed overflights within the eastern DNWR (Alamo MOA) at these very low altitudes. This seems contrary to the implied flight limitations mentioned in the DEIS. Whether or not sonic booms occur with these overflights, the intrusion upon the requisite solitude of the DNWR wilderness should be addressed as a major environmental impact and one permitting only a limited degree of subjectivity based on individual tolerance levels (Pg. 3-12).

The FAA permit for these low flights does not adequately consider the provisions of FAA Advisory 91-36A, dated July 9, 1974, which lists wildlife ranges and refuges as noise-sensitive areas to be avoided by aircraft where possible. Furthermore, the memorandum of understanding (MOU) between the USAF and the FWS regarding interactions between military operations and the DNWR, and referenced in the DEIS as covering protective measures, does not apparently address the potential impact of the Alamo MOA flight characteristics on wildlife or on the proposed wilderness within the DNWR. The present MOU therefore appears inadequate

- 17-1 | in not addressing this problem and not spelling out adequate flight restrictions over this sensitive area. These limitations of the existing MOU should be discussed in the EIS along with mitigating measures such as an appropriate updating of the MOU to correct these deficiencies. Similar problems may occur on potential BLM wilderness lands affected by other MOAs associated with the NAFR operations.
- 17-2 | A few additional comments seem in order. While roads and targets of the South Range are stated to lie within those lands of the DNWR excluded from proposed wilderness, a single map of roads, target areas, and proposed wilderness boundaries would better demonstrate this (Pgs. 1-13 and 1-34).
- 17-3 | While mention is made on page 1-29 of the need for materials in road repair and construction, no mention is made here or in Section 3 of where gravel and fill material will come from and the resultant environmental impacts. Particularly, no assurance is given that the source of these materials is to be outside the proposed DNWR wilderness.
- 17-4 | The number of air crashes associated with range operations in recent years suggests a possibly appreciable impact due to unrecovered debris, direct destruction of resource values and resultant range or forest fires. Such environmental impacts may occur on or off the NAFR and on proposed BLM or FWS wilderness areas. The extent of this problem and mitigating measures, such as debris removal, should be addressed. Notification of appropriate public land management fire suppression offices seems essential.
- 17-5 | We wonder why Table 2-6, page 2-26, does not list the mountain lion among the mamalian species. This species has been observed on the DNWR and on the NTS and almost certainly is found on the NAFR.
- 17-6 | We note that the total figure for the middle column of the table on page 1-15 seems in error.
- 17-7 | With respect to long-term impacts, at least a mention of the relationship of the proposal to the cumulative, multiplying effect of growing numbers of military operations in southern Nevada seems in order. While NAFR, MOAs and the MX Missile project have a limited but large impact separately, their cumulative effect is probably greater than their simple sum. They tend to interact by crowding people off of lands desirable for certain traditional uses and concentrating these uses on lands remaining, and by such concentration degrading the value of the experience or the utilization. Restrictions or degraded utilizations impact on traditional freedoms and represent trade-offs that society must make for national security that affect the environment. However difficult this may be to objectively assess, it nevertheless needs to be stated.

Sincerely,

Bill Chivis
Chairman

Response to Questions

17-1 See response to comments 6-3, 6-5, and 6-6.

17-2 Comment noted. It is felt the graphics presented are adequate to evaluate the impacts.

17-3 Although firm site locations for gravel pits have not yet been identified nor environmental consequences stated in this document, it has been stated on page 1-27 some identified activities are at the concept stage of planning and will require a more indepth evaluation prior to initiating the action. This is the case with potential gravel pits on the Range. When sites are identified they will be evaluated for potential cultural resources, endangered species and potential impact to air and water quality. At this time a limited review of the general Range indicates the array of impacts would not be beyond the scope of impacts identified for other activities in this document, but better quantification could be obtained after sites have been identified. The text has, however, been modified on page 1-29 to state no pits or road construction will occur in the proposed wilderness area.

17-4 When aircraft crashes occur off the Range, the Air Force recovers the aircraft and associated debris immediately after the crash investigation board completes their on site investigation. This is also the case when crashes occur in accessible parts of the Range. Where crashes occur in less accessible locations on the Range, enough of the crashed aircraft is removed to complete the accident investigation; the remainder of the debris is removed at the next scheduled Range clean-up. Therefore, there is no accumulation of crash debris off the range, and only a limited amount on the Range, which is eventually removed along with other ordnance materials accumulated from normal operations.

The text on page 3-22 has been revised to indicate there is a potential for range fires from aircraft crashes.

17-5 Review of maps prepared by the Nevada Division of Water Resources, 1973, does indicate the mountain lion may be found on the Nellis AF Range; however, it is not considered to be one of the predominant species and thus has not been included in table 2-6.

17-6 The 1978 sortie value has been corrected for the FEIS.

17-7 The concern expressed in this comment is noted. This document deals with continuing the withdrawal of the Nellis AF Range. Airspace granted by FAA and future siting of MX are not a part of this proposed action, nor should they be tied strictly to the continued use of the Range. Documentation of impacts from aircraft operations over the DNWR and South Range have been extracted from reference 1 and discussed in context as the impacts apply to the withdrawal action. It would be inappropriate at this time to even suggest MX will be sited in an area near the Nellis AF Range where cumulative impacts could be experienced.



STATE OF NEVADA
GOVERNOR'S OFFICE OF PLANNING COORDINATION
CAPITOL COMPLEX
CARSON CITY, NEVADA 89710
(702) 885-4865

October 3, 1979

Ed Spang, Director
U.S. Department of the Interior
Bureau of Land Management
Nevada State Office
Room 30Q8, Federal Building
300 Booth Street
Reno, Nevada 89509

RE: SAI NV #80300019 Project: Nellis Withdrawal

Dear Mr. Spang:

Attached are the comments from the following affected State Agencies: Department of Agriculture, Department of Military, Department of Wildlife, Governor's Office of Planning Coordination, Divisions of Historic Preservation, Forestry, Environmental Protection, Mineral Resources and Conservations Districts concerning the above referenced project.

These comments constitute the State Clearinghouse review of this proposal. Please address these comments in the final or summary report.

Sincerely,

A handwritten signature in cursive script, appearing to read "Mike Nolan".

Mike Nolan for
Robert M. Hill
State Planning Coordinator

RMH:md

Enclosures

NEVADA STATE CLEARINGHOUSE REVIEW FORM

PLANNING COORDINATOR
GOVERNOR'S OFFICE
CAPITOL COMPLEX
CARSON CITY, NEVADA
885-4865

- TO:
- Highway
 - Conservation & Natural Resources
 - Human Resources
 - Fish and Game
 - Budget
 - Historic Preservation & Archeology
 - Agriculture
 - Community Services Agency
 - Commerce
 - Public Service Commission

- Employment Security Department
- Energy
- Law Enforcement Assistance
- Taxation
- Equal Rights Commission
- Economic Development (FCRC)
- G.O.P.C. - *Frankel*
- NEVADA MILITARY OPT.
-
-

8-20-79
Date

FROM: Bob Hill, State Planning Coordinator

SAI NV # 80300018

PROJECT: Nellis WITHDRAWAL

Attached for review and comment is a copy of the aforementioned project. PLEASE evaluate it with respect to:

- 1) the program's effect on your plans and programs
- 2) the importance of its contribution to State and/or Areawide goals and objectives
- 3) its accord with any applicable law, order or regulation with which you are familiar
- 4) additional considerations.

PLEASE submit your comments to this office NO LATER THAN Sept 20, 1979 by checking the appropriate box below and returning the form to this office. Please do so even if you have no comment on this particular project so that we may complete our processing.

THIS SECTION TO BE COMPLETED BY REVIEWING AGENCY (Military Dept.)

- No comment on this project
- Proposal supported as written (see below)
- Additional information (see below)
- Conference desired (see below)
- Conditional support (outlined below)
- Disapproval/denial of funding (must specify reason below)

Comments: (use additional sheets if necessary)

This Department supports the Air Force withdrawal request. Elements of both the Nevada Army and Air National Guard use the Nellis range facilities.

If the withdrawal is not approved and the range use subsequently denied there will be a major negative impact on Army Guard training for Clark County based units.



9-88

Bob Hill
Reviewer's Signature

Facilities Management Officer 883-7111
Title Phone

23 August 1979
Date

NEVADA STATE CLEARINGHOUSE REVIEW FORM

PLANNING COORDINATOR
GOVERNOR'S OFFICE
CAPITOL COMPLEX
CARSON CITY, NEVADA
895-4865

- TO:
- Highway
 - Conservation & Natural Resources
 - Human Resources
 - Fish and Game
 - Budget
 - Historic Preservation & Archeology
 - Agriculture
 - Community Services Agency
 - Commerce
 - Public Service Commission

- Employment Security Department
- Energy
- Law Enforcement Assistance
- Taxation
- Equal Rights Commission
- Economic Development (FCRC)
- G.O.P.C. - *Paralel*
- NEVADA MILITARY DEPT.
- _____
- _____

8-20-79
Date

FROM: Bob Hill, State Planning Coordinator

SAI NV #

80300018

PROJECT:

NELLIS WITHDRAWAL

Attached for review and comment is a copy of the aforementioned project. PLEASE evaluate it with respect to:

- 1) the program's effect on your plans and programs
- 2) the importance of its contribution to State and/or Areawide goals and objectives
- 3) its accord with any applicable law, order or regulation with which you are familiar
- 4) additional considerations.

PLEASE submit your comments to this office NO LATER THAN Sept 20, 1979 by checking the appropriate box below and returning the form to this office. Please do so even if you have no comment on this particular project so that we may complete our processing.

THIS SECTION TO BE COMPLETED BY REVIEWING AGENCY (_____)

- No comment on this project
- Proposal supported as written (see below)
- Additional information (see below)
- Conference desired (see below)
- Conditional support (outlined below)
- Disapproval/denial of funding (must specify reason below)

Comments: (use additional sheets if necessary)

The continued use of the area should provide a requirement of decantamination and restoration of the land and water to the natural state, at the end of the period of use.



9-89

Thomas H. Bell Executive Director 784-6401 8/22/79
Reviewer's Signature Phone Date



THE NEVADA DIVISION OF HISTORIC PRESERVATION AND ARCHEOLOGY
 201 South Fall Street — Nye Building — Room 113 — Carson City, Nevada 89710
 MIMI RODDEN, Administrator Telephone (702) 885-5138

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

ROLAND D. WESTERGARD, Director

ROBERT LIST
 GOVERNOR

DATE: September 14, 1979

MEMORANDUM

TO: Office of the State Planning Coordinator
 FROM: Division of Historic Preservation and Archeology
 SUBJECT: Comments on Clearinghouse Project Summary SAI
 NV # 80300018, Nellis Withdrawl.

The Division has received and reviewed a copy of the above mentioned project summary. The National Register of Historic Places and the Division's files have been checked. No properties listed on, eligible to, or pending nomination to the National Register are located within, or immediately adjacent to, the project area. Review of the project summary indicates that no cultural resource survey work is required. The proposed project will have "no effect" on properties of National Register quality.

This Division as the State Historic Preservation Office has no additional comments to forward to the applicant at this time. A copy of this letter should be retained in the project file as documentation of consultation as required under 36 CFR, Part 800.4.

This comment is to be returned together with Form A-95 424 to the applicant.



Recycling
 Nevada's Heritage

August 24, 1979

MEMORANDUM

TO: Pete Morros, Assistant Director
FROM: Environmental Protection
SUBJECT: SAI# 80300018 Nellis Withdrawal

In reference to the above project, the Division of Environmental Protection staff has the following comments:

AIR

18-2 Dick Serdoz: Land clearing permits may be required for the new roads and other facilities. Along with a revegetation plan for any existing on newly disturbed surfaces. Tables 2-1, 2-2, and 2-3 are no longer valid. Mason changes based and the 1977 amendment
18-3 to the federal clean air act. Nellis the southern tip of the Nellis Base into the non-attainment basin #212 and any new emission located in that area will have to be offset on a one to one basis. The Las Vegas Valley has been designated as violating state and
18-4 federal ambient Air Quality Standards for TSP, CO, and O₃. Based on the emission generated as fugitive dust the new construction would require a PDS Permit based on a recent ruling by the District Court with the ambient air monitoring for the pollutants generated.
18-5 Increased emissions from LTO will have to be identified by Clark County as part of the growth increment or offset if this occurs in basin #212.

WATER

Wendell McCurry: No comment.

SOLID WASTE

Verne Rosse: No comment.

kh



NEVADA STATE CLEARINGHOUSE REVIEW FORM

PLANNING COORDINATOR
GOVERNOR'S OFFICE
CAPITOL COMPLEX
CARSON CITY, NEVADA
885-4865

- TO:
- Highway
 - Conservation & Natural Resources
 - Human Resources
 - Fish and Game
 - Budget
 - Historic Preservation & Archeology
 - Agriculture
 - Community Services Agency
 - Commerce
 - Public Service Commission

- Employment Security Department
- Energy
- Law Enforcement Assistance
- Taxation
- Equal Rights Commission
- Economic Development (ECRC)
- ~~USOPC~~ NEVADA MILITARY OPT.
-
-

8-20-79
Date

FROM: Bob Hill, State Planning Coordinator

SAI NV # 80300019 PROJECT: NELLIS WITHDRAWAL

Attached for review and comment is a copy of the aforementioned project. PLEASE evaluate it with respect to:

- 1) the program's effect on your plans and programs
- 2) the importance of its contribution to State and/or Areawide goals and objectives
- 3) its accord with any applicable law, order or regulation with which you are familiar
- 4) additional considerations.

PLEASE submit your comments to this office NO LATER THAN Sept 20, 1979 by checking the appropriate box below and returning the form to this office. Please do so even if you have no comment on this particular project so that we may complete our processing.

THIS SECTION TO BE COMPLETED BY REVIEWING AGENCY (_____)

- No comment on this project
- Proposal supported as written (see below)
- Additional information (see below)
- Conference desired (see below)
- Conditional support (outlined below)
- Disapproval/denial of funding (must specify reason below)

Comments: (use additional sheets if necessary)

p 3-10 | The A.F. when preparing the draft EIS agreed that a complete inventory of the withdrawal for recreational potential, sites, etc could be made by Div of Parks. The agreement should be mentioned

18-6 | It is recognized that the land could not be utilized for active recreation but would be useful to complete a gap in Nevada's data base.

Mike | The Draft EIS should mention our new "DOD" MOU

18-7

9-92

James Spasch Reviewer's Signature Admin Offices Title 885-4865 Phone 9/7/79 Date

ROLAND D. WESTERGARD, Director
Department of Conservation
and Natural Resources

ROBERT LIST
Governor

Address Reply to
Nye Building
201 S. Fall Street
Carson City, Nevada 89710
843-4330

LOWELL V. "Looy" SMITH
State Forester Firewarden



STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
DIVISION OF FORESTRY

CAPITOL COMPLEX
CARSON CITY, NEVADA 89710

September 5, 1979

MEMORANDUM

TO: Peter G. Morros, Ass't Director
FROM: L. V. Smith (vs)
SUBJECT: SAI NV #80300018 - Nellis Withdrawal

The withdrawal in question is actually an application for renewal for the area currently used as a test site by the Air Force. Some of the test site has been subjected to severe environmental degradation, and perhaps will never recover.

I feel that the tests made by the Air Force are essential and will continue even if new test sites have to be sought. I feel it is in the best interest to renew the application; it would be senseless to degrade new areas presently environmentally stable.

18-8 | Within the test site there are currently 21 threatened and endangered plant species recognized by the State of Nevada. Efforts should be made to protect these plants from future destruction.

js



NEVADA STATE CLEARINGHOUSE REVIEW FORM

PLANNING COORDINATOR
GOVERNOR'S OFFICE
CAPITOL COMPLEX
CARSON CITY, NEV
895-4865

- TO:
- Highway
 - Conservation & Natural Resources
 - Human Resources
 - Fish and Game
 - Budget
 - Historic Preservation & Archeology
 - Agriculture
 - Community Services Agency
 - Commerce
 - Public Service Commission

- Employment Security Department
- Energy
- Law Enforcement Assistance
- Taxation
- Equal Rights Commission
- Economic Development (FCRC)
- G.O.P.C. - *Frank*
- NEVADA MILITARY DEPT.
-
-

8-20-
Date

FROM: Bob Hill, State Planning Coordinator

SAI NV # 80300018

PROJECT: NELLIS WITHDRAWAL

Attached for review and comment is a copy of the aforementioned project. PLEASE evaluate it with respect to:

- 1) the program's effect on your plans and programs
- 2) the importance of its contribution to State and/or Areawide goals and objectives
- 3) its accord with any applicable law, order or regulation with which you are familiar
- 4) additional considerations.

PLEASE submit your comments to this office NO LATER THAN Sept 20, 1977 by checking the appropriate box below and returning the form to this office. Please do so even if you have no comment on this particular project that we may complete our processing.

THIS SECTION TO BE COMPLETED BY REVIEWING AGENCY (_____)

- No comment on this project
- Proposal supported as written (see below)
- Additional information (see below)
- Conference desired (see below)
- Conditional support (outlined below)
- Disapproval/denial of funding (must specify reason below)

Comments: (use additional sheets if necessary)

18-9
Observation of the area in question appears to fully support the proposal as written. I would recommend that the withdrawal be continued as proposed. Also note that, as per proposal's recommendations, Wilderness designation for the Desert National Wildlife Range should be denied as not suitable.



State Conservation
Commission Member

885-5414
Phone

9/10/79
Date

[Signature]
Reviewer's Signature

STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES

ROLAND D. WESTERBARD, Director
JOYCE HALL, Administrator

Capitol Complex
201 South Fall Street
Carson City, Nevada 89710

Address Reply to
Capitol Complex
Nye Bldg., 201 S. Fall Street
Carson City, Nevada 89710
Telephone (702) 885-4368

September 17, 1979

MEMORANDUM

TO: Peter G. Morros, Assistant Director
FROM: Joyce Hall, Administrator *Joyce*
SUBJECT: SAI NV #80300018 - Nellis Withdrawal

After having reviewed the Draft Environmental Statement concerning the proposed public land withdrawal of the Nellis Air Force Bombing Range, I would like to offer some comments.

The first comment relates to distribution to the public of the statement itself. Chapter IX contains a list of individuals and organizations who "will receive a copy of the draft statement". Included on the list are the Governor's Advisory Mining Board (Now the Oil, Gas and Mining Board), and the Nevada Mining Association, neither of which has received a copy of this document. I have not checked with any of the others listed.

18-10 Although it is very clear that the existence of the Nellis Air Force Bombing Range is important to the economy of southern Nevada, in particular the rural counties, I feel it should be emphasized that this is one of many withdrawals and proposed withdrawals in Nevada of land which the U.S. Geological Survey has studied and determined "could be a future source of selected mineral commodities to meet national requirements". Unfortunately, the cumulative impact of withdrawals of public lands is not assessed; of specific concern is the total impact on minerals availability.

18-11 The draft environmental statement repeatedly mentions that portions of the South Range are being recommended by the U.S. Fish and Wildlife Service (FWS) for inclusion in the wilderness system. As this area is currently closed to multiple use and activities such as road-building are

prohibited, a de facto wilderness has been created. It is therefore suggested that prior to being granted wilderness status the areas in question should be opened for multiple use, including mineral exploration. In other words, the Air Force should not be engaged in the practice of creating wilderness which is then turned over to FWS in a "natural" condition for their management. The area is roadless because the Air Force has not permitted development.

18-11
"Under the purview of NEPA of 1969..., Endangered Species Act of 1973..., Wild Free-Roaming Horses and Burro Act of 1971..., Taylor Grazing Act of 1934 as amended..., Public Land Administration Act of 1960..., and under the principles of multiple use and sustained yield as defined in 86-517, a five-party cooperative agreement was signed on January 27, 1977 by the Air Force, BLM, FWS, Nevada Department of Fish and Game, and ERDA (now DOE)." (Emphasis added)

The purpose of the agreement is to manage the South Range to allow, among other activities, hunting. If hunting is in fact consistent with Air Force activity, it should be true that mineral exploration and development, as one of the multiple uses, must also be a goal of cooperative management.

In conclusion, the continued withdrawal by the Air Force is being proposed without a study by the U. S. Government of the cumulative impact on minerals availability of such a withdrawal. Closure to mineral exploration and development is inconsistent with the multiple use principle which was set as a goal of the five party cooperative agreement signed in 1977.

JH:vb



ROBERT LIST
GOVERNOR

GLEN K. GRIFFITH
DIRECTOR

1100 VALLEY ROAD

P.O. BOX 10678

RENO, NEVADA 89510

TELEPHONE (702) 784-6219

September 10, 1979

Mike Nolan
State Planning Coordinator's Office
Heroes Memorial Building
108 W. Second Street
Second Floor
Carson City, Nevada 89701

Dear Mike:

The Nevada Department of Wildlife appreciates the opportunity to review and provide comments on the Nellis Withdrawal, SAI #803000.

We recommend that comments in the following three areas relative to the E.I.S. in question be addressed to the U.S. Air Force.

18-12

- 1) It is our feeling that complete inventory of wildlife occurring on the above area should be implemented pursuant to the established five-party agreement. (The species list in the E.I.S. is not an inventory.) From this inventory will spring management plans that will address the needs of wildlife on this area. Even though wildlife on the area belongs to the people of the State of Nevada with responsibility for its welfare vested with the State Wildlife Department, the Air Force must assume equal responsibility as landlords for the habitat to cooperatively assist the state in this mission, including the financing of the proper management.

18-13

- 2) In that portion of the area where the Air Force is overflying the Desert National Wildlife Range and its administrative wilderness, there is a suspected conflict with Air Force operations. Extremely low flying aircraft seemingly continue to increase over these areas, which is not in concert with managing wilderness from the noise level standpoint. More importantly, though, is the fact that our biologists remain concerned about the impact of such noise on the major species the range was set up to protect, the desert bighorn sheep.

We recommend that a study of aircraft noise levels and flying levels in relation to the maintenance of thrifty herds of bighorn on the Desert National Wildlife Range be seriously addressed and also that the wilderness/noise conflict problem be addressed.



18-14

- 3) We feel that there are portions of the bombing range that could be opened to public use such as controlled hunting, hiking, etc. The Belted Range and the Kawitch Valley are examples of areas where deer and antelope hunting might be legally accommodated. This aspect needs to be investigated and inventories of wildlife need to be accomplished here to determine the amount of hunting recreation that could be provided.

In summary, we are not objecting to the continued withdrawal as proposed for national defense purposes; however, we feel that a "handle" must be gotten on wildlife inhabiting the area and how wildlife populations and habitat can best be managed and protected.

Sincerely,

B.G.
Glen K. Griffith
acting

Glen K. Griffith
Director

Response to Questions

18-1 To agree to such a requirement would indicate there are no long term effects from past withdrawals of the Nellis AF Range. Unexploded ordnance and radioactive contaminated sites have committed the land to limited use. It must be understood that this is an existing condition that has occurred from previous commitments and use of the resources. The Air Force does agree to conduct an explosive ordnance device (EOD) survey when the Range is no longer needed. Based on the level of technology, available at that time and environmental constraints, unexploded ordnance will be removed from the land.

18-2 As indicated on page 2-37 of the draft EIS, the Air Force is aware of the Nevada requirement to obtain a permit for any construction that disturbs topsoil on more than 20 acres of land.

18-3 Data in tables 2-1, 2-2 and 2-3 have been updated with data provided by the Nevada Division of Environmental Protection, Air Quality Section.

18-4 The southern tip of the South Range is within the Las Vegas Valley Air Quality Basin No 212. (To obtain a visual reference of the Basin No 212 boundary on the South Range, one can draw a horizontal line through the target complex in subrange 65 and extend eastward through subrange 63. Range land south of the described line is within Basin No 212.) The only construction activity projected to occur on the South Range is the improvement of 80 miles of roads. About 50 miles of the existing roads to be repaired and covered with an oil and chip overlay are within Basin No 212. Due to funding constraints it is probable road repair on the South Range would be broken into segments, with each segment being completed in a fiscal year. At this rate, it would take two years to complete the 80 miles on the South Range. Fugitive dust generation from the construction would be less than 100 tons per year. Once the construction is completed the annual fugitive dust generation created by vehicular travel on the roads would be cut in half.

The fugitive dust generated in connection with proposed construction activities is of a short time duration. This dust is not considered by the Air Force to be an emission from a stationary source subject to either Prevention of Significant Deterioration (PSD) or non-attainment new source review and permitting requirements. All applicable permit requirements of the State of Nevada dealing with surface disturbance emissions from construction activities will be obtained prior to initiating the project.

18-5 Emissions from aircraft landing and takeoff operations at Nellis AFB will add to Clark County's inventory of emissions by a very small amount. These emissions are from mobile sources and thus are not subject to the offset requirements for major stationary sources under the Clean Air Act. The impact of these emissions may, however, be considered by Clark County in the development of their implementation plan to insure compliance with ambient air quality standards.

18-6 The Air Force recognizes the agreement with the Nevada Division of Parks and requests they contact the Tactical Fighter Weapons Center, Range Group Commander to arrange a mutually agreed schedule. The EIS has been modified on page 3-12₂ to reflect this agreement.

18-7 The Air Force acknowledges the new MOU but does not feel including a discussion of it would assist in understanding impacts of the proposed withdrawal.

18-8 Page 2-18, fourth paragraph of the EIS has been changed to indicate Nevada does have a list of endangered and threatened species. Table 2-5 shows the Nevada T/E plants that are considered on or adjacent to the Nellis AF Range. Page 4-2, second paragraph has been modified to discuss protection measures for Nevada listed plants.

18-9 Comment noted.

18-10 The draft EIS points out that the mineral evaluation conducted by the USGS and BM supports a premise, based on geologic formations and past mining activity in the area, that there are three locations on the Nellis AF Range which may have mineral commodities to meet national requirements. It is emphasized that this is a premise and as such USGS and BM state further surveys are needed to determine if the minerals are present. If future surveys show mineral resources are sufficient to meet national requirements, an evaluation of this need must be weighed against the defense training need. If the mineral need is greater, the withdrawal may have to be modified. There are yet many areas in the State of Nevada where the full mineral potential has not been defined. Until this is accomplished it is difficult to state the ultimate impact on mineral availability in the State. Military withdrawal of the Nellis AF Range does not prevent mineral surveys. The land is available to USGS and BM for conducting a survey and may be included in their survey program. Thus continued withdrawal of the Range is a temporary rather than a permanent closure of mineral availability.

18-11 The Air Force is not a party to the wilderness proposal for the Desert National Wildlife Range. FWS responded to the wilderness legislation and felt the area met the criteria. Provided the wilderness designation does not restrict the training mission, the Air Force does not object to the proposal.

The Air Force appreciates the remainder of the comments concern to include mineral exploration and development as a part of the multiple use and sustained yield principle in the Five Party Cooperative Agreement. As discussed in the response to comment 18-10, mineral surveys can be conducted, however, mineral development is not compatible with existing uses for the area and will not be made a part of the Cooperative Agreement.

18-12 The Air Force recognizes its responsibility in the Five Party Cooperative Agreement and in recent meetings with the parties to this agreement requested greater emphasis be placed on wildlife inventories and management of the resources.

18-13 See response to comments 2-5 and 6-7.

18-14 See response to comment 7-1.



United States Department of the Interior

NATIONAL PARK SERVICE
WASHINGTON, D.C. 20240

IN REPLY REFER TO:

L7619(135)

OCT 29 1979

Memorandum

To: Director, Bureau of Land Management, Washington, D.C.
Attention: Division of Land Resources and Realty: Robert
Sherer (321)

From: Acting Director, National Park Service

Subject: Draft Environmental Statement on The Public Land Withdrawal
for the Nellis Air Force Bombing Range, Nye, Clark, and
Lincoln Counties, Nevada (DES 79-47)

We have reviewed the subject document concerning the continuation of Nellis Air Force Base training, testing, and weapons evaluation operations on a range of 2,945,726 acres in southwest Nevada. Our comments follow:

Our principal concerns relate to radioactive contamination of air and water. Though the DES states contamination will be negligible, merely saying so is insufficient to allay concern for the future purity of these essential resources. Release of radioactive gases and contaminated particulates could threaten life and health of local area residents and visitors to the surrounding areas.

19-1
Page 3-1. The Environmental Protection Agency emission factor for fugitive dust of 1.2 tons per acre per month is given. Fugitive dust created from bombing, range maintenance, and construction is considered a temporary source of pollution. The Clean Air Act deals with regulation of permanent (stationary) sources and mobile sources of pollution. Any control of temporary sources would be under the jurisdiction of the State and/or local Air Resources Department.

Section 118 of the Clean Air Act states that each Federal agency must comply with Federal, State, interstate, and local requirements for air pollution, unless exempted. Since control of temporary sources is at the option of State and local departments, we recommend that the Air Resources Department in Nevada be contacted for relevant control standards. State of Nevada contacts are listed below:

Year of
the
Visitor

Donald Arkell
 Director, Air Pollution Control Division
 District Health Department of Clark County
 625 Shadow Lane
 Las Vegas, NV 89106

Dick Serdoz
 Air Quality Office
 Department of Conservation and Natural Resources
 201 S. Fall Street
 Carson City, NV 89701

19-2 | Page 3-4. "Radioactivity attributable to the resuspension of dust particles in the air from contaminated areas onsite has never been detected in offsite samples, and it is not expected to be in the future /3/." (Reference /3/ is the Final Environmental Statement - Nevada Test Site, Nye County, Nevada, 1977.) The quote is misleading, unless further tests have been made to include the subject area. We recommend, if not already done, that studies be made which include the area.

We are less concerned about measured gas concentrations averaged over the year than face-value concentrations measured at a given time (paragraph 5). As the structures are temporary in nature, daily statistics should be included for evaluation.

19-3 | Page 4-3. We agree with the recommendation for the Department of Energy to continue ground water studies and dissemination of its findings. Concern is expressed about water quality in the Cactus Flat and Ash Meadows-Pahute Mesa ground systems, both of which are believed to extend to Death Valley National Monument.

Editorial Comments:

19-4 | Page 11. The acronym for Desert National Wildlife Range (DNWR) should be given before used in the text.

19-5 | Page 1-25. "DOEWANDWTHEWAIR" should read "DOE and the Air."

19-6 | Page 2-2. Water resources paragraph incomplete.

19-7 | Page 8-5, top of page. Part of the text is missing.

19-8 | Since the subject area is now unsuitable for public use due to unexploded ordnance, we believe continued use of the area for defense training is in order. However, we believe every effort should be made to protect Lake

19-8 | Mead National Recreation Area and Death Valley National Monument, from
air quality deterioration and other unforeseen impacts to visitors or
environment from military actions on the Nellis Air Force Bombing Range.

We appreciate the opportunity to review the subject proposal and offer
no further comments.

Jerry M. Gant

Response to Questions

19-1 See response to comments 16-2 and 18-2 through 18-5.

19-2 The referenced quote includes the sites shown in Figure 1-4. As discussed on page 3-4 of the draft EIS, there have been releases of radioactive noble gases. On occasion, some releases have resulted in low but measurable concentrations at continuously operated gas sampling stations on and off the Nevada Test Site. A more detailed review of DOE activities is provided in reference 3 to this EIS.

19-3 Comment noted.

19-4 Correction made in the text.

19-5 Correction made in the text.

19-6 The text has been corrected.

19-7 The text has been corrected.

19-8 It is believed the data and analysis provided in the Air Quality Section in Chapter II and III show the continued use of the Nellis AF Range will not significantly impact air quality.

Individual Comments Presented at Public Hearing

HEARING COMMENTS AND RESPONSES

Comment H-1

Mr. Brian Beck: Representing the Bullfrog Mining District.

I represent the Bullfrog mining district and I am a geologist. The N.T.S. or, excuse me, the Nellis Air Force bombing range environmental impact statement is erroneous in that as Mr. Spicer said, does not include the nuclear contamination which has gone on. In the statement it conducts regions for the water over the ground water system. It also indicates where six nuclear devices have been set off. The devices or the statement is erroneous in the statement that only six devices have been set off. The entire range, including the Nevada Test Site has set off over four hundred and fifty-five nuclear devices since 1976. Of these devices that I have been able to find out, over fifty-one have been set off from the Pahute Mesa area while the drainage goes right on down through the Thunder Canyon area, right down through all the farming ranges, down to Beatty to the farm areas and on into Death Valley.

Response to H-1

Figure 1-4, page 1-18 provides the location of the six tests discussed in this comment. These tests have resulted in surface contamination to a point where radiation safety measures have been instituted. Additional tests (all underground) conducted on the Pahute Mesa are identified in figure 1-7.

Comment H-2

Mr. Brian Beck: The report does not stipulate what the water movement is but from the latest Nevada Test Site they say it is one inch per year. In other words, if a bomb went off it would take 28 years, that the bomb set off, it would--the contamination should have moved 28 inches, but through recent studies of ground water in the area, I have come to the conclusion, along with others, that the rate is now at point eleven miles per year. What it simply means is Beatty in the year of two thousand two hundred and six should start to receive contamination. All the ranges and everything above that will start receiving it sooner. The wells should start receiving it about two thousand one hundred and seventy eight or about one hundred and ninety-nine years from now. Eventually the farming areas will receive it. These nuclear devices that are being set off from the Tonopah test range have contaminated the water all the way from Goldfield and all the way down to Indian Springs. The contamination will not reach Las Vegas, but they will go into Death Valley. That seems to be where the entire system is draining. The entire system at present time is covering about one-third of the Nevada water supply.

Response to H-2

See response to comment 12-2.

Comment H-3

Mr. Brian Beck: The above ground test, which I believe are more important. I believe the first nuclear test was set off in 1951 and continued until 1962. There were eighty such aboveground tests and there were seven underground tests during those years. The aboveground tests are the ones which pose the immediate problem. The double tract test, which is listed in the environmental impact statement was set off less than twenty miles due east from Goldfield, Nevada. No warnings were given to the people there. Plutonium is still degrading there and you could go out with a soilometer and find traces of plutonium right against U.S. 95.

Response to H-3

The draft EIS provides dates for the Roller Coaster and cratering test conducted on the Nellis AF Range.

Comment H-4

Mr. Brian Beck: The other areas which are contaminated go right to Pahute Mesa. The contamination of the underground--any underground nuclear test, it didn't make a damn whether it's underground, there will be some surface disruption and radiation. It may not go for more than a few hundred yards but there is surface contamination.

Response to H-4

Comment noted.

Comment H-5

Mr. Brian Beck: On that note there are fourteen others which have not been reported. The surface contamination isn't in the northern test range. We think they are effecting Goldfield, the population there and also Tonopah and the Pahute Mesa area which will render also the entire farming community going all the way down through Amargosa farming area will be completely effected and pretty much destroyed in the future.

Response to H-5

See response to comment 12-2.

Comment H-6

Mr. Brian Beck: The Timber Mountain site is extremely recent. About ten million years in age, but the volinex which

extends radiating from this particular cone dates at less than two hundred and fifty thousand years. There is still present activity going on there. Still present active energy there in the area right across from what is called the hot springs area, was considered in the early 60's as a geotherm protection. In the 1920's or the late 1920's there was an earthquake which occurred in the area which cut off all the water supply to the area, to the Chrystal area which is right next to the Timber area. They propose to put in a nuclear waste facility in an active area. It's total madness. You put a facility in there you have such active faults from both the earthquakes could have such shattering and destruction in time. That's one consideration they have not looked into.

Response to H-6

DOE has decided to evaluate Yucca Mountain rather than Timber Mountain as a potential nuclear waste management site. Seismic activity of the Nellis AF Range and NTS has been considered from the point of natural earthquakes to induced shocks from underground nuclear testing (see page 2-48 and figure 2-10 of the draft EIS).

Comment H-7

Ms. Kathleen Bergin: Representing the Archaeological Research Center.

I want to emphasize that all significant cultural resources have not been identified and they are not even close to being identified. Until fifteen to twenty percent of the total area of the north and south ranges have been intensively surveyed, an adequate sensitivity map of the type referred to in the draft EIS cannot be produced, nor can Nellis have a satisfactory understanding of the cultural resources which they are responsible for managing.

Response to H-7

Comment noted. See response to comment 15-1.

Comment H-8

Ms. Kathleen Bergin: The following are recommendations that will help Nellis meet its responsibilities as a cultural resource manager, which is a new role for Nellis. First, it is recommended that Nellis Air Force Base develop and implement a master plan for the management and conservation of the historic properties for which it is responsible. A programmatic memorandum of agreement with the Advisory Council and other interested parties concerning this master plan would express Air Force intent to comply with existing federal legislation. The Master Plan should address National Environmental Policy Act and National Historic Preservation Act requirements

including review and comment by ACHP and consultation with the State Historic Preservation Officer. A survey for historic properties should be conducted well in advance of any land altering activity. The Air Force should consider historic properties during project planning so as to conserve the limited resources/or to minimize any adverse effects to them.

Secondly, the master plan should address Executive Order 11593 responsibilities for further survey and inventory of the historic properties controlled by Nellis. To date only one percent of the north range, five percent of the surface use areas of the south range have been surveyed.

Lastly, the Master Plan should address plans for the nomination of significant sites and districts to the National Register of Historic Places.

Response to H-8

See response to comment 15-1.

Comment H-9

Ms. Kathleen Bergin: A second recommendation is that information about historic properties and historic preservation be incorporated into Nellis E.O.D. briefings and Tonopah Test Range and Nevada Test Site security briefings. Pilots must be alerted not to bomb and strafe historic period architecture as targets of opportunity.

Response to H-9

See response to comment 15-2.

Comment H-10

Ms. Kathleen Bergin: Lastly, it is recommended that Nellis develop mutually beneficial relations with legitimate research institutions and groups such as the Historic Archaeology Program and Archaeology Program at the University of Nevada, Las Vegas, the Southern Nevada Certification Program and the Archaeo-Nevada Society at the University of Nevada, Las Vegas Museum of Natural History. This would permit qualified individuals and groups to conduct research on the range which Nellis would required a comprehensive report on all work undertaken. This action would help Nellis meets its Executive Order 11593 obligations without having to expend money for the site survey, inventory and evaluation work.

Response to H-10

See response to comment 15-3.

Comment H-11

Mr. Scott Crandenberg: Representing the Archaeological Research Center.

We would like to recommend at this time that the map that was mentioned in the F.D.I.S. that was prepared at the end of Miss Bergin's report be updated at the conclusion of this contract and again the conclusion of any other contract between the several organizations to keep this an effective plan to be the major planning tool that the Air Force could use to keep them in compliance with the national policy as relates to specific archaeological research.

Response to H-11

Comment noted.

Comment H-12

Mr. Brian Beck: Representing the S.P. Mining Company of Nevada.

There are large valuable mineral deposits that are on the test site that have not been talked about on the or in the Environmental Impact Statement. The three most important ones are found on the Pahute Mesa Area, Turkey Canyon Area and the Tolicha Peak Area. The Pahute Mesa district being part of the Condar (phonetic) complex up there. We find primarily uranium deposits up there and secondary uranium deposits up in the area. This poses a problem to the underground nuclear testing that they have up there. They have backed down previously because of too high a uranium which would set up a nuclear fusion reaction.

Response to H-12

Extensive surveys of the rocks exposed at the surface and at depth have been made by the USGS in the past and as a result it is considered Pahute Mesa does not have the appropriate geological setting where one would expect to find uranium deposits. In addition, there have been numerous exploratory and emplacement holes drilled on Pahute Mesa (see page 1-25 and 26 of the EIS). The drilling of these holes has been attended by trained geologist and from their observations of rock cores and cuttings no uranium deposits ever have been detected. During the drilling of many of these holes the drilling mud and cuttings are monitored by radiation detection instruments. Again no uranium deposits have been detected.

There is no instance in the past where DOE has refrained (backed down) from a nuclear experiment because of the fact that uranium deposits had been found which had the potential to initiate a nuclear chain reaction of any sort in the geologic media. Such a potential does not exist on Pahute Mesa.

Comment H-13

Mr. Brian Beck: Turkey Canyon area is another primary and secondary range of deposits with gold and silver deposits. In 1932 the area was explored with ore deposits and the peak area, known in the early mining days as a Monte Cristo area is rich in silver. The area was abandoned in 1941 when the test site took over. At that time they were removing ore that averaged one thousand ounces to the ton and reported in the Environmental Impact Statement they say there is only one possible mineral area and that's just east of Goldfield. The only reason they say that because there has been only one geological report done on the area. The Goldfield area district is a possible silver, gold and uranium district.

Response to H-13

Page 2-34 discusses potential prospective mineral locations on the Nellis AF Range and does discuss more than one location. A report, in addition to reference 15 to this EIS, was researched for reportings of mineral deposits. The U.S. Bureau of Mines, Western Field Operations Center, Spokane, Washington, has published a catalogue "State of Nevada - All Mineral Locations, July 1976 (MILS)" and an overlay map "Nevada MILS - All Mineral Locations, July 1976". This reference also does not identify any mineral locations on Pahute Mesa, including uranium deposits. With inclusion of data provided by comment 4-2, it is believed the EIS contains an accurate description of what is known about the mineral potential on the Nellis AF Range.

Comment H-14

Mr. Brian Beck: The primary uranium exists in two different forms up there and they are very good leads for extensive deposits, The Tule-Springs area, I believe would be the second largest silver deposit in the entire United States at the present time. When the town did exist it being used as a target area.

Response to H-14

Tule-Springs is not located within the Nellis AF Range and has never been used by the Air Force as a target area.

Comment H-15

Mr. Brian Beck: The Turkey Canyon area is totally off limits right now and there are patrols and what have you in there, but from other data and also plots coming down the valley an assessment of it is easy, also through diaries I have obtained from prospectors who existed in the area and people who have prospected that area before that time. I do have samples of material they have obtained there. I have also ascertained

that there are nine different mines which are not indicated in the Environmental Impact Statement.

Response to H-15

See response to comment H-13.

Comment H-16

Mr. Brian Beck: The Pahute Mesa area with the uranium deposits there seems to be three different ones according to data from the Nevada Test Site. The zones seem to be four hundred, eight hundred and two thousand feet and a number of bombs which they have set up in the Pahute Mesa area existed just below that two thousand foot level. There is a high probability out there that if they go through a zone and do not recognize it for its uranium content they could send impulse through it and get a reaction and there is precedence for that type of reaction taking place in South Africa.

Response to H-16

See response to comment H-12.

CHAPTER X

CONSIDERATIONS THAT MUST BE BALANCED AGAINST ADVERSE ENVIRONMENTAL EFFECTS OF THE PROPOSED ACTION

The Nellis AF Range is a major DOD range and the most sophisticated in the United States today. It is used by all the military services. The complex provides conventional air-to-ground, supervised and unsupervised tactical air to ground, and air-to-air ranges. Electronic warfare sites that simulates an environment typical of that expected in a potential enemy target area. The environment includes electronic emissions from simulated enemy surface-to-air missile radar, anti-aircraft artillery radars, early warning and ground based jamming type radar units. The Air Combat Maneuvering Instrumentation capability provided is computerized to facilitate better training of aircrews by providing computer playback of the combat duel.

The Air Force's most sophisticated war type scenario, Red Flag, is conducted on the Nellis AF Range; the only range available to conduct this type training. Additionally, the Range provides facilities for aircraft and aircraft equipment operational testing and evaluations which are used to develop procedures for the aircrews to obtain maximum utilization of aircraft and equipment.

The land space provided at the Nellis AF Range and the climate of southern Nevada were major factors in developing the Range to provide the current level of capability. Although no new lands would be withdrawn as a result of the renewal, the restrictions on the existing range would continue. Department of Energy operations in the Pahute Mesa area and on the TTR are also a vital asset to the national defense program and would continue to use the land if the proposed withdrawal were approved.

The Nellis AF Range overlaps the Wild Horse Range and the DNWR. Continued withdrawal of the Nellis AF Range, along with the proposed construction activities would impact an additional 7600 acres of soil and vegetation. This represents 0.26 percent of the total Range acreage. When added to the present impacted acreage, the total impact to soils and vegetation would be 0.67% of the Range acreage.

Protection of the area's air quality and water resources is of vital concern. It has been concluded that the proposed action will not significantly impact either of these resources. The commitment will not significantly impact either of these resources. The commitment to replace older type aircraft with less polluting aircraft would provide additional steps to preserve clean air. Utilizing water conservation, proper solid waste disposal, and sound construction techniques should assist in maintaining good water quality for the area.

The Range has been impacted since the early 1940s with live ordnance. Although range clearance programs are conducted to remove unexploded ordnance from the surface, it would be difficult to provide 100 percent assurance that all ordnance has been removed. Consequently, the land has been committed to some extent and prohibits public use until advanced techniques are developed to provide both surface and subsurface clearance without the grave environmental consequences which would be experienced with today's technology. If the Range were moved to a new location the impact of unexploded ordnance would exist but not to the magnitude experienced at Nellis. Ordnance deliveries would be confined to maintained targets rather than to natural features which were used by aircrews in the early history of the Nellis AF Range.

From a socio-economic standpoint, renewal of the withdrawal would continue to provide some economic stability for the area; however, there may be some minor impacts in the Beatty area. It may be possible to mitigate the community impacts and not strain the economic base of the area. Future mineral surveys of the Range may show mineral deposits that could be vital national resources. When it becomes necessary to mine these minerals, the Range withdrawal may have to be modified or a mineral management plan developed.

Review of the above conditions indicates continued withdrawal of the Nellis AF Range is more environmentally sound than any other alternative available to the Air Force.

APPENDIX A

DESCRIPTION OF NELLIS AFR WITHDRAWAL

Tps. 1 - 44E - all
Tps. 2 - 44E - all
Tps. 3 - 44E - all
Tps. 4 - 44E - all
Tps. 1 - 45E - all
Tps. 2 - 45E - all
Tps. 3 - 45E - all
Tps. 4 - 45E - all
Tps. 1 - 46E - all
Tps. 2 - 46E - all
Tps. 3 - 46E - all
Tps. 4 - 46E - all
Tps. 1 - 47E - all
Tps. 2 - 47E - all
Tps. 3 - 47E - all
Tps. 4 - 47E - all
Tps. 1 - 48E - all
Tps. 2 - 48E - all
Tps. 3 - 48E - all
Tps. 4 - 48E - all
Tps. 1 - 49E - all
Tps. 2 - 49E - all
Tps. 3 - 49E - all
Tps. 4 - 49E - all
Tps. 5 - 49E - all
Tps. 6 - 49E - all
Tps. 7 - 49E - all
Tps. 8 - 49E
 Secs. 1-11, 14-23, 26-35
 Secs. 12, 13, 24, 25, 36, excl of that w/d by PLO 2568
Tps. 9 - 49E
 Secs. 2-11, 14-23, 26-35
 Secs. 1, 12, 13, 24, 25, 36, excl of that w/d by PLO 2568
Tps. 10 - 49E
 Secs. 2-11, 14-23, 26-35
 Secs. 1, 12, 13, 24, 25, 36, excl of that w/d by PLO 2568
Tps. 11 - 49E
 Secs. 2-11, 14-23, 26-35
 Secs. 1, 12, 13, 24, 25, 36, excl of that w/d by PLO 2568
Tps. 12 - 49E
 Secs. 2, 11, 14-23, 26-35
 Secs. 1, 12, 13, 24, 25, 36, excl of that w/d by PLO 2568
Tps. 1 - 50E - all
Tps. 2 - 50E - all
Tps. 3 - 50E - all

Tps. 4 - 50E - all
Tps. 5 - 50E - all
Tps. 6 - 50E - all
Tps. 7 - 50E - all
Tps. 8 - 50E

Secs. 1-6

Secs. 7, 8, 9, 10, 11, 12, excl of that w/d by PLO 2568

Tps. 2 - 51E - all
Tps. 3 - 51E - all
Tps. 4 - 51E - all
Tps. 5 - 51E - all
Tps. 6 - 51E - all
Tps. 7 - 51E - all
Tps. 8 - 51E

Secs. 1-6

Secs. 7, 8, 9, 10, 11, 12, excl of that w/d by PLO 2568

Tps. 3 - 51-1/2E - all
Tps. 4 - 51-1/2E - all
Tps. 3 - 52E - all
Tps. 4 - 52E - all
Tps. 5 - 52E - all
Tps. 6 - 52E - all
Tps. 7 - 52E - all
Tps. 8 - 52E

Secs. 1-6

Secs. 7, 8, 9, 10, 11, 12, excl of that w/d by PLO 2568 and 805

Tps. 3 - 53E - all
Tps. 4 - 53E - all
Tps. 5 - 53E - all
Tps. 6 - 53E - all
Tps. 7 - 53E - all
Tps. 8 - 53E

Sec. 1-6

Secs. 7, 8, 9, 10, 11, 12, excl of that w/d by PLO 805

Tps. 8 - 54E

Secs. 4-9, 16-21, 28-33

Tps. 4 - 54E

Secs. 4-9, 16-21, 28-33

Tps. 5 - 54E - all

Tps. 6 - 54E - all

Tps. 7 - 54E

Sec. 1-34

Secs. 35-36, excl of that w/d by PLO 1382

Tps. 8 - 54E

Secs. 3-6

Secs. 2, 7, 8, 9, 10, 11, 35, 36, excl of that w/d by PLO's 805 and 1382

Tps. 9 - 54E

Secs. 1, 12, 13, 24, 25, 36

Secs. 2, 11, 14, 23, 26, 35, excl of that w/d by PLO 805

Tps. 10 - 54E

Secs. 1, 12, 13, 24, 25, 36

Secs. 2, 11, 14, 23, 26, 35, excl of that w/d by PLO 805

Tps. 11 - 54E
 Secs. 1, 12, 13, 24, 25, 36
 Secs. 2, 11, 14, 23, 26, 35, excl of that w/d by PLO 805
 Tps. 12 - 54E
 Secs. 1, 12, 13, 24, 25, 36
 Secs. 2, 11, 14, 23, 26, 35, excl of that w/d by PLO 805
 Tps. 13 - 54E
 Secs. 10-15, 22-27, 34-36
 Secs. 9, 16, 21, 28, 33, excl of that w/d by PLO 805
 Tps. 14 - 54E
 Secs. 1-3, 10-15, 22-27, 34-36
 Secs. 4, 9, 16, 21, 28, 33, excl of that w/d by PLO 805
 Tps. 5 - 55E
 Secs. 2-11, 14-23, 26-35
 Tps. 6 - 55E
 Secs. 2-11, 14-23, 26-35
 Tps. 7 - 55E
 Secs. 2-11, 14-23, 26-30
 Secs. 31, 32, 33, 34, 35, 36, excl of that w/d by PLO 1382
 Tps. 8 - 55E
 Secs. 31-36, excl of that w/d by PLO 1382
 Tps. 9 - 55E - all
 Tps. 10 - 55E - all
 Tps. 11 - 55E - all
 Tps. 12 - 55E - all
 Tps. 13 - 55E - all
 Tps. 14 - 55E - all
 Tps. 7 - 55-1/2E
 Secs. 31, 32, 33, excl of that w/d by PLO 1382
 Tps. 8 - 55-1/2E
 Secs. 4, 9, 16, 21, 28, 31, 32, 33, excl of that w/d by PLO 1382
 Tps. 9 - 55-1/2E - all
 Tps. 10 - 55-1/2E - all
 Tps. 11 - 55-1/2E - all
 Tps. 12 - 55-1/2E - all
 Tps. 13 - 55-1/2E - all
 Tps. 14 - 55-1/2E - all
 Tps. 8 - 56E - all
 Tps. 9 - 56E - all
 Tps. 10 - 56E - all
 Tps. 11 - 56E - all
 Tps. 12 - 56E - all
 Tps. 13 - 56E - all
 Tps. 14 - 56E - all
 Tps. 8 - 57E - all
 Tps. 9 - 57E - all
 Tps. 10 - 57E - all
 Tps. 11 - 57E - all
 Tps. 12 - 57E - all
 Tps. 13 - 57E - all

Tps. 14 - 57E - all
Tps. 8 - 58E - all
Tps. 9 - 58E - all
Tps. 10 - 58E - all
Tps. 11 - 58E - all
Tps. 12 - 58E - all
Tps. 13 - 58E - all
Tps. 14 - 58E - all
Tps. 8 - 59E - all
Tps. 9 - 59E - all
Tps. 10 - 59E - all
Tps. 11 - 59E - all
Tps. 12 - 59E - all
Tps. 13 - 59E - all
Tps. 14 - 59E - all

Tps. 16 South, Range 54 East, Section 1, N1/2, Section 2, N1/2, Section 3, N1/2 and Section 4, NE1/4; Township 16 South, Range 55 East, Section 1, N1/2, Section 2, N1/2, Section 3, N1/2, Section 4, N1/2, Section 5, N1/2 and Section 6, N1/2; Township 16 South, Range 55-1/2 East, Section 1, N1/2 and Section 2, N1/2 (PLO 4986 does not have an expiration date.)

Township 16 South Range 56 East, Section 8, Tract 42C

Township 5 South, Range 44 East, partly unsurveyed, Sections 1 and 2;
Sections 10 to 16, inclusive; Sections 20 to 36, inclusive;

Township 6 South, Range 44 East, unsurveyed;

Township 7 South, Range 44 East, unsurveyed, Sections 1 to 5, inclusive;
Sections 8 to 16, inclusive; Sections 22 to 26, inclusive, Sections 35
and 36;

Township 8 South, Range 44 East, unsurveyed, Section 1;

Townships 5 to 7 South, Range 45 East, unsurveyed;

Township 8 South, Range 45 East, unsurveyed, Sections 1 and 18, inclusive;
Sections 20 and 27, inclusive; Sections 35 and 36;

Townships 5 to 8 South, Range 46 East, unsurveyed;

Township 9 South, Range 46 East, unsurveyed, Sections 1 to 6, inclusive;
Sections 8 to 15, inclusive; Sections 23 and 24;

Townships 5 to 8 South, Range 47 East, unsurveyed;

Township 9 South, Range 47 East, unsurveyed, Sections 1 to 30, inclusive;
Sections 33 and 36, inclusive;

Township 10 South, Range 47 East, Sections 1, 2, and 12;

Townships 5 to 9 South, Range 48 East, unsurveyed;

Township 10 South, Range 48 East, unsurveyed, Sections 1 and 17, inclusive,
Sections 21 and 26, inclusive; Section 36.

T15S, R57E

Secs. 1 - 36 Inc.

T16S, R57E

Secs. 1 - 36, Inc.

T15S, R58E

Secs. 1 - 36, Inc.

T16S, R58E

Secs. 1-7 Inc; NW1/4SW1/2 Sec. 8; W1/2 Sec. 16; Sec. 17-21 Inc;
SW1/4 Sec. 22; Sec. 27-34, Inc.

T17S, R58E

Sec. 1-4 Inc; NE1/4 Sec. 5; Sec. 9 (NE1/4); N1/2, N1/2 SW1/4,
SE1/4 SW1/4, SE1/4, all Sec. 10; Sec. 11 and 12, Inc; NW1/4 Sec. 13;
N1/2, NE1/4 SE1/4, SE1/4 of Sec. 14; NE1/4 NE1/4 Sec. 15.

T16S, R58E, unsurveyed

NE1/4 Sec. 8; Sec. 9-10 and 15; E1/2 Sec. 16; N1/2, SE1/4 of Sec. 22.

GRAND TOTAL FOR WITHDRAWAL - 2,945,725.57 ACRES

APPENDIX B

GLOSSARY

- Acre-foot** - The amount of water necessary to cover one acre to a depth of one foot, equaling 43,560 cubic feet.
- Air-to Air** - Relating to activities which occur solely in the air.
- Air-to-ground (surface)** - Relating to those activities which originate in the air and terminate on the ground.
- Alluvium** - Clay, silt, sand, and gravel or other rock material transported by flowing water and deposited in comparatively recent geologic time.
- Alluvial fan** - A low, outspread, relatively flat to gently sloping mass of loose rock material, shaped like an open fan, deposited by a stream at the place where it issues from a canyon or wash onto a plain or valley.
- Animal-unit-month** - Pounds of forage or feed required to sustain an animal unit (one cow or five sheep) for a period of 30 days.
- Background zone** - That portion of the visual landscape lying from the middleground limits out to infinity. Color and texture are subdued in these areas, which are primarily concerned with the two-dimensional shape of landform against the sky.
- Basin and range** - A geographic area, including most of Nevada and portions of adjacent states, which is characterized by numerous paralleled mountain ranges and intervening valleys.
- Biotite schist** - A crystalline rock that can be readily split or cleaved because of having a foliated or parallel structure, generally secondary, and developed by shearing and recrystallization under pressure in which the biotite is a mica mineral containing silicates of iron, magnesium, potassium and aluminum.
- Caliche** - A secondary deposit of calcareous material found a few feet below the present or former buried ground surface.
- Cenozoic** - An era of geological history that extends from the beginning of the Tertiary period to the present time, or a period covering about 63,000,000 years.
- Colluvium** - Loose and incoherent deposits accumulated at the foot of a slope.

- Cultural Resources - Objects, structures, sites, and districts that pertain to native peoples or other communities; they are generally classified as either historic or prehistoric (archaeologic).
- Curie - A quantity of radioactive material which undergoes 37 billion disintegrations per second. (For example, one gram of Co-60 is equal to 1130 curies, one gram of Pu-239 is 0.061 curies, and one gram of Cs-137 is equal to 87 curies.)
- Dacite - An extrusive or shallow intrusive rock, sometimes partly glassy, composed of a plagioclase and quartz, with biotite, hornblende, or pyroxene.
- Dispersion - Pertains to the meteorological aspects which define how a substance; solid, liquid, or gas, is mixed in the atmosphere.
- Electronic Warfare - Use of equipment to detect and to defeat enemy radar systems.
- Fault - A fracture or a zone of closely associated fractures along which rocks on one side have been displaced in a plane parallel to the fracture with respect to those on the other side.
- Foreground - That portion of the visual landscape lying generally from one-quarter to one mile beyond the viewer.
- Fugitive dust - Any dust particles which become airborne other than those being emitted by a stack or chimney.
- Granite - A coarse-grained igneous rock formed essentially of quartz and feldspar (orthoclase, microcline, plagioclase).
- Gneissia quartz monzonite - A laminated or foliated igneous rock composed of plagioclase orthoclase and quartz together with hornblende and a little biotite.
- Ground water - That water in the natural environment which is below the ground surface; subsurface water as opposed to surface water.
- Ground zero - In respect to nuclear explosions, that point on the surface which coincides with the center of the explosion.
- Hardpan - See caliche.
- Hydrophilous vegetation - Plants growing in water.
- Inert ordnance - Ordnance which does not contain explosives, except for the spotting charge that is employed to signal the aircrew on the accuracy of the drop.

Insolation - The rate of delivery of all direct solar energy per unit of horizontal surface.

Interfluve - The district between adjacent streams flowing in the same direction.

Isotope - Forms of the same element having identical chemical properties but differing in their atomic masses and their nuclear properties.

Live Ordnance - Ordnance filled with explosives.

Megaton - One million tons; used to express the energy released in a nuclear explosion.

Memorandum of Understanding - An agreement established between two or more parties identifying their respective responsibilities.

Mesozoic - An era of geological history that extends from the Paleozoic to the Cenozoic era. Generally considered to be that time between 230 million and 63 million years B.C.

Mixing height - The height above the surface through which relatively vigorous vertical mixing occurs.

Microcurie - One millionth part of a curie. It represents the quantity of radioactive material that undergoes 2.22 million disintegrations per minute. See Curie.

Middle ground - That portion of the visual landscape lying generally between the limits of the foreground (about one mile) to eight miles beyond the viewer. Overall patterns of vegetation and earthform constitute texture which is no longer distinguishable in human size features.

Niche - A habitat supplying the factors necessary for the existence of an organism or species.

Noble gas - Gaseous elements (helium, neon, argon, krypton, xenon, and radon) in the periodic table which chemically are relatively inert. Certain nuclear reactions result in the production of radioactive isotopes of these gases.

Paleontological - Pertains to the science dealing with the life of past geological periods as known from fossil remains.

Perennial yield - The amount of groundwater which can be removed from a hydrographic area each year without depleting the groundwater reservoir.

- Precambrian - A period of geological history prior to the Cambrian period of the Paleozoic era. A time period covering from the beginning of earth up to 600 million years B.C.
- Quaternary - A subelement of the Cenozoic era and covers a period of one million years B.C. to the present time.
- Radioactive - Exhibiting the property of spontaneously emitting particles (alpha, beta, neutrons) or radiant energy (gamma, rays) by the disintegration of atomic nuclei.
- Rhyolitic - Pertains to a very acid volcanic rock that is the lava form of granite.
- Riparian - Vegetation related to or living on the bank of a natural watercourse or lake.
- Scenario - The plot or staging of a war type exercise.
- Sortie - A landing and take-off of an aircraft.
- Subsidence crater - A depression formed at the surface of the ground by an underground nuclear explosion if the chimney collapse has progressed to the surface.
- Stability - A term relating the wind speed and insolation (incoming solar radiation) factors to determine dispersion characteristics of the atmosphere.
- Safe separation distance - The distance personnel must maintain from a radiation source to control exposure within an acceptable level.
- Tertiary - A period of geological time in the Cenozoic era which ranges from 63 million years to one million years B.C.
- Tuff - A compacted layered pyroclastic rock formed by the deposition of ash and dust expelled into the atmosphere from a volcanic vent.
- Venting - The prompt escape to the atmosphere of gases and solid residues from an underground explosion.
- Wild Weasel Aircraft - A specialized aircraft designed to counter, suppress, and destroy enemy threat systems.
- Withdrawal - Withholding an area of Federal land from settlement, sale, location, or entry, under some or all of the general land laws, for the purpose of limiting activities under those laws in order to maintain other public values in the area or reserving the area for a particular public purpose or program; or transferring jurisdiction over an area of Federal land from one department, bureau or agency to another department, bureau or agency.

APPENDIX C

REFERENCES

- 1 - United States Air Force. Final Environmental Statement for the Tactical Fighter Weapons Center Range Complex. Nellis Air Force Base, Nevada, May 1976.
- 2 - United States Air Force. Environmental Protection - Pollution Abatement and Environmental Quality, AFR 19-1, Department of the Air force, Washington, D.C., January 1978.
- 3 - Energy Research and Development Administration - Final Environmental Statement - Nevada Test Site, Nye County, Nevada. ERDA-1551, September 1977.
- 4 - United States Navy. Seafarer ELF Communications System, Draft Environmental Impact Statement for Site Selection and Test Operations - Nevada Environmental Analysis. U.S. Navy, February 1977.
- 5 - United States Air Force. Range Management Plan. Tactical Fighter Weapons Center Range Group, Nellis AFB, Nevada, October 1976.
- 6 - United States Air Force. Weapons Ranges & Air Force Manual 50-46, Nellis AFB Supplement 1. Nellis AFB, Nevada, December 1976.
- 7 - United States Air Force. Executive Order 11508 DOD Installation Survey Report - Indian Springs Auxiliary Airfield. Nellis AFB, Nevada, November 1972.
- 8 - U.S. Department of Interior. Final Environmental Statement - Proposed Desert Wilderness Area, Nevada. Fish and Wildlife Services, August 1975.
- 9 - U.S. Energy Research and Development Administration, Environmental Assessment, Tonopah Test Range, December 1975.

- 10 - Holzworth, George C., Mixing Heights, Wind Speeds and Potential for Urban Air Pollution Throughout the Contiguous United States, EPA Publication No. AP-101, dated January 1972.
- 11 - Rhoads, William A., and Michael P. Williams, EG&G. Survey - Status of Endangered and Threatened Species on Nevada Test Site, Part 1 - Endangered Species, Report No. EG&G-1183-2356, dated April 1977.
- 12 - BLM., Agriculture Potential on Resources Lands - State of Nevada, September 30, 1976.
- 13 - United States Air Force. Land Management Plan - Nellis Air Force Range, NV., Nellis AFB, January 1976.
- 14 - United States Air Force/PREV, Handbook for Environmental Impact Analysis, Interim Environmental Planning Bulletin No. 11., USAF, Washington, D.C., June 1976.
- 15 - Cornwall, Henry R. and John R. Noreberg, Mineral Resources of the Nellis AFB and the Nellis Bombing and Gunnery Range, Clark, Lincoln, and Nye Counties, U.S. Geological Survey and U.S. Bureau of Mines, 1978.
- 16 - EPA, Compilation of Air Pollutant Emission Factors, 2nd edition, U.S. Environmental Protection Agency, Publication No. AP-42. Research Triangle Park, N.C., March 1975.
- 17 - Naugle, Dennis F., and others, Air Quality Impact of Aircraft at 10 USAF Bases, Report No. CEEDO-TR-76-23, Civil Engineering Center, Tyndall AFB, FL., April 1977.
- 18 - BLM, Social-Economic Profile - Including Eureka, Lander, and Nye Counties, Nevada, Bureau of Land Management, Nevada State Office, April 1976.
- 19 - U.S. Department of Commerce, State Projection of Income, Employment, and Population to 1990, Survey of Current Business, April 1974.

- 20 - U.S. Department of Interior, Final Environmental Statement for Second Stage Southern Nevada Water Project, Bureau of Reclamation, Washington, D.C., June 1977.
- 21 - Nevada State Engineer's Office, Division of Water Resources, Water for Nevada, Special Report: Input-Output Economic Models, Carson City, Nevada, 1974.
- 22 - Bell, Wilson D., Animal Response to Sonic Booms, Journal of Acoustical Society of America, 1972.
- 23- Memorandum of Understanding Between the Department of the Air Force and the Department of the Interior "Air Force Operations on the Desert National Wildlife Range in Nevada", March 1976.

APPENDIX D

Excerpts from FLPMA and the Engle Act

Federal Land Policy and Management Act of 1976 (PL 94-579).

WITHDRAWALS

Sec. 204. (a) On and after the effective date of this Act the Secretary is authorized to make, modify, extend, or revoke withdrawals but only in accordance with the provisions and limitations of this section. The Secretary may delegate this withdrawal authority only to individuals in the Office of the Secretary who have been appointed by the President, by and with the advice and consent of the Senate.

(b)(1) Within thirty days of receipt of an application for withdrawal, and whenever he proposes a withdrawal on his own motion, the Secretary shall publish a notice in the Federal Register stating that the application has been submitted for filing or the proposal has been made and the extent to which the land is to be segregated while the application is being considered by the Secretary. Upon publication of such notice the land shall be segregated from the operation of the public land laws to the extent specified in the notice. The segregative effect of the application shall terminate upon (a) rejection of the application by the Secretary, (b) withdrawal of lands by the Secretary, or (c) the expiration of two years from the date of the notice.

(2) The publication provisions of this subsection are not applicable to withdrawals under subsection (e) hereof.

(c)(1) On and after the dates of approval of this Act a withdrawal aggregating five thousand acres or more may be made (or such a withdrawal or any other withdrawal involving in the aggregate five thousand acres or more which terminates after such date of approval may be extended) only for a period of not more than twenty years by the Secretary on his own motion or upon request by a department or agency head. The Secretary shall notify both Houses of Congress of such a withdrawal no later than its effective date and the withdrawal shall terminate and become ineffective at the end of ninety days (not counting days on which the Senate or the House of Representatives has adjourned for more than three consecutive days) beginning on the day notice of such withdrawal has been submitted to the Senate and the House of Representatives, if the Congress has adopted a concurrent resolution stating that such House does not approve the withdrawal. If the committee to which a resolution has been referred during the said ninety day period, has not reported it at the end of thirty calendar days after its referral, it shall be in order to either discharge the committee from further consideration of such resolution or to discharge the committee from consideration of such resolution with respect to the Presidential recommendation. A motion to discharge may be made only by an individual favoring the resolution, shall be highly privileged (except that it may not be made after the committee has

reported such a resolution), and debate thereon shall be limited to not more than one hour, to be divided equally between those favoring and those opposing the resolution. An amendment to the motion shall not be in order, and it shall not be in order to move to reconsider the vote by which the motion was agreed to or disagreed to. If the motion to discharge is agreed to or disagreed to, the motion may not be made with respect to any other resolution with respect to the same Presidential recommendation. When the committee has reprinted, or has been discharged from further consideration of a resolution, it shall at any time thereafter be in order (even though a previous motion to the same effect has been disagreed to) to move to proceed to the consideration of the resolution. The motion shall be highly privileged and shall not be debatable. An amendment to the motion shall not be in order, and it shall not be in order to move to reconsider the vote by which the motion was agreed to or disagreed to.

(2) With the notices required by subsection (c)(1) of this section and within three months after filing the notice under subsection (e) of this section, the Secretary shall furnish to the committees -

(1) a clear explanation of the proposed use of the land involved which led to the withdrawal;

(2) an inventory and evaluation of the current natural resource uses and values of the site and adjacent public and non-public land and how it appears they will be affected by the proposed use, including particularly aspects of use that might cause degradation of the environment, and also the economic impact of the change in use on individuals, local communities, and the Nation;

(3) an identification of present users of the land involved, and how they will be affected by the proposed use;

(4) an analysis of the manner in which existing and potential resource uses are incompatible with or in conflict with the proposed use, together with a statement of the provisions to be made for continuation or termination of existing uses, including an economic analysis of such continuation or termination;

(5) an analysis of the manner in which such lands will be used in relation to the specific requirements for the proposed use;

(6) A statement as to whether any suitable alternative sites are available (including cost estimates) for the proposed use or for uses such a withdrawal would displace;

(7) a statement of the consultation which has been or will be had with other Federal departments and agencies, with regional, State, and local government bodies, and with other appropriate individuals and groups;

(8) a statement indicating the effect of the proposed uses, if any, on State and local government interests and the regional economy;

(9) a statement of the expected length of time needed for the withdrawal;

(10) the time and place of hearings and of other public involvement concerning such withdrawal;

(11) the place where the records on the withdrawal can be examined by interested parties; and

(12) a report prepared by a qualified mining engineer, engineering geologist, or geologist which shall include but not be limited to information on: general geology, known mineral deposits, past and present mineral production, mining claims, mineral leases, evaluation of future mineral potential, present and potential market demands.

The Act of Feb. 28, 1958 (PL 85-337), Known as the "Engle Act."

Sec. 2. No public land, water, or land and water area shall, except by Act of Congress hereafter be (1) withdrawn from settlement, location, sale, or entry for the use of the Department of Defense for defense purposes; (2) reserved for such use; or (3) restricted from operation of the mineral leasing provisions of the Outer Continental Shelf Lands Act (67 Stat. 462), if such withdrawal, reservation, or restriction would result in the withdrawal, reservation, or restriction of more than five thousand acres in the aggregate for any one defense project or facility of the Department of Defense since the date of enactment of this Act or since the last previous Act of Congress which withdrew, reserved, or restricted public land, water, or land and water area for that project or facility, whichever is later.

Section 3. Any application hereafter filed for a withdrawal, reservation, or restriction, the approval of which will, under section 2 of this Act, require an Act of Congress, shall specify -

(1) the name of the requesting agency and intended using agency;

(2) location of the area involved, to include a detailed description of the exterior boundaries and excepted areas, if any, within such proposed withdrawal, reservation, or restriction;

(3) gross land and water acreage within the exterior boundaries of the requested withdrawal, reservation, or restriction, and net public land, water, or public land and water acreage covered by the application;

(4) the purpose or purposes for which the area is proposed to be withdrawn, reserved, or restricted or if the purpose or purposes are classified for national security reasons, a statement to that effect;

(5) whether the proposed use will result in contamination of any or all of the requested withdrawal, reservation, or restriction area and if so, whether such contamination will be permanent or temporary;

(6) the period during which the proposed withdrawal, reservation, or restriction will continue in effect;

(7) whether, and if so to what extent the proposed use will affect continuing full operation of the public land laws and Federal regulations relating to conservation, utilization, and development of mineral resources, timber and other material resources, water resources, and scenic, wilderness, and recreation and other values; and

(8) if effecting the purpose for which the area is proposed to be withdrawn, reserved, or restricted, will involve the use of water in any State, whether, subject to existing rights under the law, the intended using agency has acquired, or proposes to acquire, rights to the use thereof in conformity with State laws and procedures relating to the control, appropriation, use, and distribution of water.